

TRENDS IN THE DEVELOPMENT OF AGRICULTURAL ECONOMICS IN CANADA¹

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GROWTH OF AGRICULTURAL ECONOMICS

Agricultural Economics as an organized activity in Canada traces its origin at least to the period of the first world war. At that time certain of the Colleges of Agriculture undertook both research and instruction in what was then a comparatively new field. During the middle and late 1920's several additional institutions established departments of agricultural economics or added courses of instruction in the subject, to the program of other departments. During this period, too, the Dominion took steps to organize for economic research in the field of agriculture. It is with the developments that have occurred since the late 1920's, and more particularly with activities in the Dominion field, that this paper will deal.

EARLY DEVELOPMENTS

The Agricultural Economics Branch of the Dominion Department of Agriculture was established in 1929 but during the two or three years preceding this development there had been considerable discussion, both official and unofficial concerning the work that should be undertaken by the new unit. Reference to this may now be of interest. It may suggest how far we have progressed in our thinking in twenty years.

The minister of Agriculture of that day, Hon. W. R. Motherwell, had urged as early as 1927, the formation of a "Co-operative Branch" as an addition to the Dominion Department of Agriculture. In reference to the matter in 1928 he had referred to the proposed unit as the "Agricultural Co-operative Marketing Branch". Later the term "Agricultural Co-operative Marketing and Farm Economics" was considered. However, at the suggestion of persons with whom the matter was discussed, including officials of provincial departments of agriculture and leaders in the co-operative movement a much wider field of activity was decided upon than was originally intended. The name chosen for the new unit was "Agricultural Economics Branch". Even then, however, the title "Farm Economics including Agricultural Co-operative Marketing" appeared for some years in the Department's estimates as submitted to parliament.

The decision to reverse the order of emphasis and to enlarge upon the scope of activities to be undertaken may have been influenced by a quotation brought to the attention of the Minister. This was from a statement by

¹ A paper delivered at the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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Sir Henry Rew, K.C.B., entitled "The Scope of Agricultural Economics", and was published by the Agricultural Economics Society of England about 1928. Sir Henry, in referring to the appointment of Committees by the Imperial Agricultural Research Conference, said:

"A number of specialist committees were appointed and among them was one to consider 'Agricultural Economics (including Marketing)'. One wonders what conception of the scope of Agricultural Economics was in the minds of those who thought it necessary to explain that it included marketing. It would have been just as reasonable to have explained that the subject included production. Indeed, the sale and distribution of farm products constitute the main part of Agricultural Economics. Subsistence farming comes, it is true, within the range of the subject, but the chief problems of Agricultural Economics arise in connection with commodities which are produced for market. The play of 'Hamlet' without the Prince of Denmark would be a model of coherence compared with a study of Agricultural Economics which excluded marketing".

Those familiar with the development of Agricultural Economics as a science will appreciate that the relationship of subject matter outlined by this British authority is the one generally accepted in countries where economic research has received important recognition. It is the relationship in effect for many years in the United States Department of Agriculture where the Bureau of Agricultural Economics has played an important role.

Nevertheless, in Ottawa the thinking of the Minister, his long association with the co-operative movement and his original desire that co-operation should be featured was reflected in an outline of proposed activities prepared by the present speaker soon after his appointment as Head of the Branch. This outline listed the fields of activities to be dealt with in the following order (1) co-operative marketing, (2) marketing, (3) farm management and economic surveys, (4) land economics, (5) rural sociology, (6) historical research, (7) a current publication.

In 1930 a statement of the activities of the Agricultural Economics Branch was presented to the Canadian Society of Technical Agriculturists, Wolfville, N.S.¹ In this statement the various fields of research were outlined in this order (1) Farm Management, (2) Land Problems, (3) Credit Finance and Taxation, (4) Transportation, (5) Marketing, (6) Agricultural Co-operation, (7) Statistics, (8) Agricultural History, (9) Rural Sociology. The order of presentation was not intended to suggest degrees of importance but rather that work should begin with the farm and from there proceed to the market and then to the broader field involving the relationship of farmers to the rest of society.

THE THIRTIES

It was on this basis that the program of the Economics Branch (now the Economics Division, Marketing Service) was projected during the decade of the thirties. With the assistance of other Branches or Divisions of the Dominion Department, and in co-operation with the provinces a

¹ Federal Activities in Agricultural Economics: J. F. Booth, Commissioner of Agricultural Economics, Department of Agriculture, Ottawa. A paper presented at the Annual Meeting of the Canadian Society of Technical Agriculturists, Wolfville, N.S., June 1930.

considerable amount of research was undertaken. Farm and ranch management surveys were among the first projects launched. The Department had committed the Branch to one such survey before even the Order in Council establishing the new Branch was passed.

To the research work in farm management there was added in succeeding years considerable research dealing with land use and land settlement. Land use and the economic classification of land came into prominence in Saskatchewan and Alberta where in co-operation with the Universities, and with funds provided by the Prairie Farm Rehabilitation Administration an effort was made to assist in the solution of the problems occasioned by drought. Some thirty million acres of land have been given an economic classification under this program.

Research in land settlement was suggested by the "Back to the Land" movement of the early 1930's and the belief that there could be recurring interest in settlement as long as land was available for homesteading. A considerable fund of information on the problems of the fringe area from New Brunswick to British Columbia—the cost of establishing a farm, the number of years between settlement and self sufficiency, the size of unit and area of cultivated land required—has been accumulated.

Several years ago a start was made in co-operation with the Farm Management Department, University of Saskatchewan, on a study of land tenure problems. There will be a reference to this angle.

Paralleling the early developments in farm management, plans were worked out with the provinces and the co-operative associations across Canada for the accumulation of statistics on co-operation. The collection and dissemination of information on this subject has constituted one of the important services of this Division. Records are now maintained of the activities of more than 2,000 associations marketing farm products or handling farm supplies—considerable information is also available in the Division on the affairs of a large number of organizations concerned with credit, insurance and other matters. Research based upon these records and upon more detailed field surveys has been conducted from time to time.

In other fields of marketing attention was turned to the costs and margins entailed in the processing and distributing of farm products. The cost of manufacturing cheese and butter, and of wholesaling fruits and vegetables; the returns received from the export sale of apples, the relative merits of selling livestock direct to packers compared with sale through stock yards were among the various projects undertaken at this stage.

The work in marketing included special studies of various city markets—Montreal, Toronto, Ottawa, Quebec and others—in co-operation with provincial and municipal authorities and as a basis for reorganization of the outmoded facilities now found in our older cities. The war interfered with reorganization plans but recent developments in Toronto and Montreal indicate that the matter is still a live issue.

From marketing it is but a step to consumption. With a depression settled on the country, with prices disastrously low and consumer demand anything but active, the decision to enquire into the consumption of farm products will be understood. The original purpose of such studies was

primarily to provide information that would enable marketing agencies to sell more farm products—to get rid of “the surpluses” of that period. It soon became apparent, however, that the information obtained had another and perhaps more important value—that of serving as a basis for improved dietary and health standards.

Some progress was made in other fields too. Studies of rural taxation in Ontario, and of the experiences of the Saskatchewan Farm Loan were major activities in the realm of farm finance.

The enumeration of these typical studies indicate the type of research that characterized the work of the Division during the decade ending in 1939. The establishment of offices at the Universities of Saskatchewan and Alberta and the extension of co-operative relationships with other Universities, Departments of Agriculture and various public bodies, was a prominent feature of the development of this period.

During this decade a conscious effort was made to build up factual information and to tackle the problems of agriculture as near their source as possible. To that end close contacts were established with the farm organizations and much of the work done was at the request of these bodies. To some it may have appeared that the Division was concerned too much with the practical day to day problems of the individual farmer and too little with the broader considerations involved in the determination of agricultural policies.

THE WAR PERIOD

Then came the war and with it a change in emphasis as far as the work of the Economics Division was concerned. As guidance in the field of production and control in respect of the distribution and sale of farm products became necessary, information as a basis for policies, and assistance in developing such policies became essential. Under these conditions a new use was found for the information accumulated by the Economics Division. The data on costs of producing apples in Nova Scotia and the information on prices received in the British market over a seven year period—two of the studies completed during pre-war years—provided a basis for the program of government assistance to the apple industry when access to the United Kingdom market was cut off. So essential was this information that at the request of administrative authorities similar studies dealing with costs of production and distribution in British Columbia were undertaken in 1940.

Similar information with respect to other products was made available and served a purpose in respect of subsidy and price policies, and in connection with farm labour, farm machinery and other matters. The machinery built up, and the research done in connection with the Agricultural Outlook Program carried on from 1935 to 1939 served as a foundation for the development of Agricultural Objectives in 1942 and subsequent years.

The personnel of the Division, with the experience gained in dealing with the economics of production and marketing, was drawn upon by the various Boards and other agencies established to administer the war program. Members of staff were loaned “for the duration” to the British

Purchasing Commission, the Wartime Prices and Trade Board, the Department of Labour, the Reconstruction Committee, the Agricultural Supplies Board, the Agricultural Food Board, the Meat Board and other bodies.

Formal research on the pre-war standard was reduced to a minimum and informal research, if such it may be called, was increased. The sort of research involved in getting quickly the necessary factual information required for the formulation and administration of policies became the principal activity of a substantial proportion of the Division staff during this period.

It may be of interest to note that despite emphasis on matters concerned with the war and the use of economic information in that connection, other activities were carried on and the information obtained by the Division prior to the war was used for other than war purposes. Examples of this were the use of land classification techniques and data by the Commission engaged in the re-assessment of Saskatchewan land and the incorporation of irrigation survey information in the report of the Commission appointed to consider the development of the St. Mary's and Milk River Irrigation project in Southern Alberta.

THE FUTURE

The foregoing outline of developments during the inter-war and war periods, though more lengthy than desired, will, it is hoped, have laid a foundation for consideration of probable developments in the years ahead. Looking back over the changes that have taken place one gets a hint of what is in store for the future. The experiences of the past year in particular throw light on future probabilities.

VARIETY OF WORK

First it may be said that little if anything in the program already in effect can be discarded. Practically every type of activity carried on before the war is represented in requests for additional research made to the Division by farm organizations, distributor groups, provincial governments and similar bodies during the past year or two. As evidence of this the following list of projects and the agencies proposing them are cited: A study of taxation in Prince Edward Island requested by the Government of the Province; an extension of the Toronto Market survey requested by the Ontario Department of Agriculture to bring information obtained before the war up to date and to serve as a basis for market reorganization; a survey of the cost of producing milk in the Fraser Valley of British Columbia, a joint appeal by the Province, the University, Farm organizations and the trade; a study of rural credit by the Saskatchewan Government and surveys of the marketing of fruits and vegetables and of poultry products by the same government; extension of land use and settlement projects in British Columbia; inauguration of farm management and land classification research in southwestern Manitoba requested by the University of Manitoba; special studies of agricultural co-operation in Ontario and British Columbia sought by the farm organizations of these provinces; a survey of the Winnipeg market for fruits and vegetables proposed by the Province of Manitoba.

These requests for research are not made out of idle curiosity or with the desire to get something for nothing, to wit the expenditure of Federal funds in the provinces. They are made with the knowledge that the usual policy of the Economics Division is to require the active participation and expenditure of funds by the province or the University, and the conduct of the project on a joint basis. In the case of one of the projects listed above, trade organizations offered to share the cost. This is evidence of a keen desire to have research undertaken, for it is not usual for organizations or groups other than bodies financed by public funds, to offer financial assistance for the conduct of such research.

One of the most significant requests in connection with post-war programs was that made to the Dominion Committee on Reconstruction several years ago. It was made by the Deans of three agricultural colleges and it urged that one of the most pressing needs was for more work in farm management.

The program of the future must include most if not all of the kinds of activity carried on in the past and on a more comprehensive basis than heretofore. Of that there is little doubt; but it must also go further. In most respects the new developments will be an extension of what has already been done but in some fields virtually new ground must be broken. The new program must continue to emphasize these activities that produce information required by farmers and those engaged in marketing agricultural products—information that can be used by such persons in improving the efficiency of their operations; but it must also yield information needed by farmers as a group and by governments in dealing with agriculture as an industry. The economist will be expected to contribute more extensively to the development of agricultural policies and to general policies that have some relation to agriculture, than was the case before the war.

As evidence of this it may be worthwhile to refer to some of the other requests that have been made of the Economics Division, and to some of the things that are taking place in Canada and beyond our borders.

PROJECTS UNDER WAY

A year or two ago the Province of Alberta appointed a Commission to study the question of rural electrification. There were many angles to be considered—more than just the fact that farmers would benefit from greater access to electricity. The Economics Division of the Dominion Department of Agriculture and the staff of the University were asked to participate in the work of the Commission.

The Economics Division, in co-operation with provincial authorities and with the assistance of farm organizations has recently completed a national survey of probable farm machinery, farm equipment and building material requirements over the next few years. The survey was requested by Dominion authorities as a basis for allocation of materials. Although this project is related to wartime controls it is evidence of the kind of thing that may be anticipated if governments play a more active role in business affairs than in pre-war days.

The Division has also recently completed a survey for the Reconstruction Department—a segment of a more general study relating to reconstruction, public investment and employment.

In Saskatchewan, economists of the Dominion Service together with those of the University of Saskatchewan are participating in the work of a Committee that is considering the more effective use of land within the province. The results of research already completed are being used and new projects will take into consideration the needs of this Committee.

Conservation

Agricultural conservation is not a new subject but it is one that is likely to receive much more consideration in the years to come. Agricultural authorities have in the past been concerned with the matter mainly as a factor in farm operations; at least that was so prior to the passage of the Prairie Farm Rehabilitation Act and the development of a program under its auspices. The subject is now becoming invested with a public interest, and in eastern as well as western Canada. Agriculture will not stand alone in any extension of work in this field. Conservation involves forestry, fisheries and wild life, water power, flood control and the development of parks and recreational areas. In short it concerns the public and public policy in the widest sense. Recent developments suggest that farm economists will be expected to participate in the conservation program of the future on an even more extensive basis than in the past.

Land Tenure

Land tenure is a matter that is likely to call for more consideration in the future. A conference recently held at the University of Chicago, which was participated in by representatives of eleven countries, indicates that on the basis of the experience of older countries we are likely soon to face many questions in connection with land tenure. We already have a hint of this and some research has been conducted. Much more will be required, however.

Marketing and Transportation

There are many new developments in the field of marketing. New processes and new products have emerged as a result of war and recent scientific achievement. Dehydrated products, frozen foods, storage lockers, new processes and facilities for packaging—all these and more, suggest new problems, and new opportunities. Agricultural economists are certain to be called upon to play some part in the development in this field.

The economics of transportation and distribution has received little consideration from agricultural economists to date. With all the changes that are taking place, and with the implications they carry for agriculture, can we stand on the side lines looking on?

Rural Credit

Rural credit is a perennial topic but have we heard the last of it? Evidently not, for the Economics Division has before it for consideration two requests for studies of credit facilities and credit needs. One of these already referred to as coming from the government of Saskatchewan involves credit unions—an agency that as far as this continent is concerned emerged in Quebec 40 years ago, and which during the past decade has spread

rapidly over the whole of the Dominion. Much has been done in recent years to meet the current needs in agricultural credit but the need changes from time to time and economic research will be necessary for the development of future policies.

FOOD AND AGRICULTURE ORGANIZATION

The fields of nutrition and food management have come to the fore prominently in recent years. No longer does agriculture stand alone pleading for markets for its products. The world has become food and scarcity conscious. As a solution to the problem of surpluses there has been added the conception of a world adequately fed. An international agency, the Food and Agriculture Organization, has been created to encourage world thinking and to co-ordinate international action. FAO is a forward step and much can be achieved by it if nations will but co-operate. It cannot function on pious hopes and prayers, however. There must be action and action must be preceded by careful study. The plans already laid by the organization emphasize research in many fields and the establishment of an economics division is a step in that direction. Canada will be expected to contribute in various ways.

FAO emerged as a product of the war but it is much more than that. It traces its origin to the restrictionist 1930's—to the sectionalism and nationalism that prevailed at that time. It traces its origin, too, to the contrasting conditions of surplus and malnutrition.

FAO is in a sense a symbol of a new order and of new thinking; or should one say a return to order and thinking. In any event, the thinking that brought it into being is also responsible for other important developments in internationalism—in the fields of finance, communication, and trade, to mention but three. These portend important new development and no country or group will be more concerned with what transpires than Canada and Canadian farmers.

Canadian farmers, because of these developments will be more concerned with what is taking place in other countries than ever before. Agricultural departments will be expected to provide a service in respect of foreign agriculture and since most of what takes place will be in the field of economics it is apparent that agricultural economists will be called upon to make their contribution.

GREATER EXPANSION NEEDED

If this analysis of the situation is correct it follows that there must be an expansion, and to some extent a new emphasis in agricultural economic research and service. It means more consideration of agriculture as an industry, as a segment of a national and international economy. It means more research directed toward the formulation of policies and more help to those responsible for administration. It must not, however, mean less research on the problems of production and marketing which are the immediate concern of the farmer and those who market his product, for were that to follow, it would mean lessened ability to participate in the new order—an order which despite its evidence of freedom, will be characterized by an intensity of competition in trade and in other respects.

It has been said that you cannot tell how fast a horse is running by watching it pass a tree—you must match it with other horses. The application of this to agriculture suggests that we take a look at what is happening elsewhere—what steps are being taken by other countries to meet competition. It will not be possible to dwell at length on these but it can be said that everywhere steps are being taken to increase services on behalf of agriculture. The plan for reorganization and expansion announced last year in Britain is one evidence of this. The existence of a corps of graduate students from South American countries studying in the United States, and studying in particular the organization of the Department of Agriculture, is another. Exchanges from other countries all emphasize a similar development.

Agricultural Education

Not of least significance in this regard is the recognition of agricultural economics. A Committee was appointed in the United Kingdom in 1944, by the Minister of Agriculture and Fisheries, to consider the need "for higher agricultural education" in England and Wales. It recently issued an 85-page report summarizing its findings. In referring to agricultural economics the Committee states:

"We have chosen to deal separately with Agricultural Economics because although the term comprehends a varied range of studies which enter more or less into the functions of all occupational classes that we have discussed, those studies are all concerned in one way or another with a common aspect of agricultural activity, which has received insufficient systematic attention in the past and is likely to claim very much more in the future. Since agricultural economics is concerned with the business side of farming, and farming is essentially a business, the agricultural economist's field is coterminous with agricultural activity. Agricultural economics is in fact the counterpart and complement of the whole group of natural sciences as applied to agriculture. Its scope may be illustrated by mentioning a few of the subjects with which it deals. They include land utilization; types of farming; land tenure, capital, credit and taxation; farm management and accountancy, including measure of efficiency; labour and wages; markets and prices; international trade in farm products; relations between the state and agriculture; rural sociology and agricultural history".

While appointed to consider the need for better training of men in agriculture the Committee by inference and assertion makes it clear that the agricultural services of England and Wales must be both improved and expanded to meet post-war needs. The appointment of such a Committee is in itself evidence of such a belief in official quarters. The prominence and positiveness with which the committee expresses its views on agricultural economics and the business side of farming must be encouraging to those who for years have felt that these matters received too little attention.

Emphasis on Agricultural Economics

Agricultural Economics had attained considerable recognition in the United States, Germany, Holland, Denmark, Sweden, Switzerland, Australia, New Zealand and South Africa before the war. Recent advice from

Australia indicates that the pre-war development has been expanded into the status of a Bureau comparable in rank with other divisions of the agricultural service. In Mexico, Brazil, Argentine, Chile and other Latin American countries Bureaus and Divisions of Agricultural Economics have been established in recent years.

The report of the British Committee to which reference was made refers to Canada as having given more recognition to agricultural economics than has been accorded the subject in England and Wales. While this recognition is gratifying and while it is a matter of much satisfaction that agricultural services including economics are being expanded by the Dominion Government, in one respect at least progress in Canada has not been all that it should have been. Reference is made to work in Agricultural Economics in the provinces. Agriculture is the responsibility of both the Dominion and the provinces under the British North America Act and there are phases of the work in agricultural economics that should be handled by the provinces. Not the least important of these is the training of agricultural economists. It is no secret that one of the things retarding expansion in the Dominion service today is a lack of adequately trained agricultural economists.

The Report to which reference has been made refers to the fact that "every important university in the United States of America has a professor of agricultural economics". This is a characteristic British understatement of fact. Practically all the United States Universities which have agricultural faculties, and some that do not, have several professors of agricultural economics. Some have from 10 to 20 and even more. Applying the comparison to Canada it may be said that at any one of several Universities in the United States there are more agricultural economists than in the nine universities and agricultural colleges of Canada combined. An analysis of the staff at universities in the States bordering Canada alone, made several years ago, indicates that there were at that time 191 persons engaged in agricultural economics and rural sociology. The number at all Canadian universities and colleges was 25, about half of whom were on a seasonal or part-time basis.

It is realized that we should not make too much of what others are doing. It may not be possible for us to do what they are doing, particularly our more wealthy and more populous neighbour. But are we doing what is possible? Do we recognize that very important changes have taken place in the thinking of farmers and in the needs of agriculture and that everywhere people in rural areas want information and help on economic and social problems.

SUMMARY

It is nearly twenty years since the first discussions that led to the formation of the Economics Division of the Federal Department of Agriculture took place. Nearly three years elapsed before the Division was established. They were fruitful years in one sense, however, for in the discussion that accompanied delayed action there emerged a much broader conception of what should be encompassed in the work of such an agency than was originally envisaged.

The Division when established in 1929 embarked upon a fairly comprehensive program of research but one in which the immediate problems of those concerned with production and marketing received primary attention. As the years passed, as services were expanded and as the usefulness of economic information became apparent, some contribution was made toward the solution of problems faced by those responsible for agricultural policies and administration. In the main, however, the years leading up to 1939 were devoted to the accumulation of factual information and to dealing with the day to day problems of farmers and the agencies marketing farm products.

With the advent of war the situation changed appreciably. In the development and administration of numerous policies necessary to a maximum war effort the need for statistical and economic information soon became apparent. The accumulated information of the Division soon became useful, but research activities were necessarily curtailed. Much of what was undertaken during this period was concerned with policies and administration.

The return of peace has brought a renewal of demands for the kind of service provided before the war and on a much broader scale but it has also brought a new demand—an extension in some measure of the activities of the war period. These demands are associated with a greatly enlivened interest in both national and international affairs. Canadian farmers have again become conscious, perhaps more than at any time in Canadian history, of what a world in need of food can mean to them, and they to it. There is hope on the horizon and much of it stems from the creation of the Food and Agriculture Organization, the provision for financing world trade and the prospective formation of an international body to facilitate trade among nations.

In meeting the needs of an agriculture desirous of playing its part in this enlarged sphere of activity there are likely to be opportunities for those concerned with the economics of agriculture to play an increasingly important role.

Finally, while it has seemed appropriate to discuss developments during the past two decades in terms of the experiences of the Economics Division at Ottawa, those familiar with what has happened in the provinces and with what is likely to happen in the future will, it is hoped, recognize in what has been said much that is descriptive of their experiences and of what the future has in store for them.

RESEARCH TRENDS IN AGRICULTURAL ECONOMICS¹

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Whether the contents of this paper are adequately described by the title allotted on the program is open to conjecture. However, the writer was a member of the program committee and as such has taken the privilege of a rather wide interpretation of what might be included in these remarks. In recent months a number of articles and comments have been published in the *Journal of Farm Economics* relating to the topic of research. The author wishes to acknowledge these as a general source of some of the ideas which are presented herein.

It is most appropriate that in the field of agriculture generally, and in agricultural economics particularly, the theme of these meetings should be "Research". For the past six years an upheaval has taken place the impact of which on the social, political and physical sciences, is beyond our comprehension at this close range. We are still too close to the events of the immediate past to realize their far-reaching implications in full. Irrespective of our wishes, our feelings, or our failure to appreciate these implications, there will no doubt be general agreement that the ways and means of the twenties and thirties are out of step with modern requirements. Accordingly, we must temper our attitudes and adopt ways and means appropriate to the new circumstances.

PRESENT CONDITIONS

And which of these new circumstances are important to the research worker in agricultural economics? Let us look at some of the developments of the war years which may offer clues to the probable trends in research in the science of agricultural economics. At least three main developments carry suggestion of probable future trends. These developments may be described under the following headings.:

- (a) Wartime measures of economic control and support of agricultural activities,
- (b) Technological developments of direct and indirect importance to agriculture,
- (c) Increased public support of research programs in the physical sciences.

WARTIME MEASURES

Referring to the first mentioned development, namely wartime measures designed to control and support agricultural activities, there will be general agreement that a large proportion of these will continue into the peacetime period. In fact, some of them are already on the statute books as permanent legislation.

This development carries with it a suggestion of greatly increased needs for research in agricultural economics. Control and support pro-

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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grams for the agricultural industry will be accepted in a democratic society over a long-time period only as long as they can be justified and are operated on grounds which have a reasonable economic basis. Accordingly, continuous research projects will be necessary, designed, first of all, to acquaint those responsible for the programs and the public generally with the effectiveness and general economic justification for continuance of any particular policy. Research of this nature, however, cannot be confined to government sponsorship. To provide adequate safeguards, a rather broad program of private research, financed and directed by independent means, will be necessary. In fact, a privately financed and directed program of research in agricultural economics is one of the dominant needs in Canada today. Unfortunately, most of our institutions equipped to do research in agricultural economics are dependent on Dominion, provincial or municipal government sources for their financial support. Let us hope, however, that in the not too distant future some means may be found of providing for independent research and that we shall have private agencies carrying out unbiased and acceptable research programs designed to study not only the impingement of agricultural policy on the agricultural industry but on the Canadian economy in general.

As one interested in the statistical side of research projects, my view is that it would be well for those departments or agencies of government which are responsible for such programs or policies, to give serious consideration to the collection and documentation of statistical data and other relevant information as a source of material for the research worker. Too often in the past, boards, commissions or other agencies have been organized, served their purpose and then disintegrated, only to leave a paucity of information and records which mitigate against an adequate research job. In fact, today some agencies set up to meet special wartime requirements are already being disbanded. In some cases arrangements have been made for taking over and preserving their statistical and other records but even more can be done in this direction.

Not all of the information required for an adequate research program will be available or come from within the department or agency itself. In many cases very valuable and significant contributions will be derived from official government data and from data assembled by private agencies. Aware of the existing and future needs for adequate and reliable information on Dominion, provincial and regional bases, steps have been taken to improve, not only current, but historical statistical series in order that they may be utilized in studies of price-production, demand-supply relations and other like projects. Improvements in statistical series will take time but the benefits, particularly in respect to the matter of forecasting, will more than justify the efforts put into this work. Fundamentally, research programs of this nature will stand or fall upon the adequacy and reliability of the information on which they are based. It is, therefore, most essential, that not only existing statistical data pertinent to research in agricultural economics be improved, but that, as far as possible, future requirements be anticipated some time in advance of the need. Those familiar with statistical series are aware of the necessity for a sufficient period in which to judge the reliability and accuracy of any new series before utilizing these in research programs.

Realizing, of course, that the fact-gathering type of research will continue, nevertheless, we must recognize that there already exists a very considerable amount of undigested material awaiting the research worker. Some of this material has already been utilized but one only needs to refer to such sources as the Census, records of the operations of some of our large corporations, such as loan companies, railway companies, farm implement companies, the Soldier Settlement Board, the Canadian Wheat Board and other agencies, to realize that the surface of a "vein of high-yielding research ore" has only been scratched.

TECHNOLOGICAL CHANGES

The second development referred to concerns technological changes of importance to agriculture. To go over these in detail would be the subject of a paper of considerable length. A few examples may serve to indicate the scope of the field. Improvement in the power and design of mechanical vehicles has been marked, new chemicals open the way to greatly increased yields of both plants and animals, and new synthetic products offer both challenges and aids to agriculture. It is indeed unnecessary to go further and remark that these developments have tremendous importance in the economics of land tenure, size of farm, soil conservation, farm labour requirements and a host of other matters. Herein lie fecund fields of research and the challenge is open to the agricultural economist. If he wishes to stay in the vanguard of the sciences he cannot perform a "Rip Van Winkle role" in the face of these facts.

PHYSICAL SCIENCES

It must be recognized that during the war years the physical scientist had a wonderful opportunity to exploit the research field, and he exploited it to the full. Money cost was not an important factor and, under the urgency of war demands, the physical scientist gained a place in public esteem which assures a much more generous support of peacetime research than was the case before the war. But where should their efforts be directed under normal peacetime conditions? For guidance in this we may assume that they will look to the social scientist. Thus, we find another field of opportunity, that of close co-ordination and collaboration with the physical scientist in the development of research programs designed to foster the common weal. Perhaps we, as social scientists, can only go as far as to define the problem—but the suggestion arises that maybe our best efforts will be spent in carrying research through to a practical solution. We may also render great assistance in the general guidance of research into those necessary channels, economics and social sciences.

FUTURE RESEARCH

Consideration of the foregoing implies that future research in agricultural economics will be directed more to the solution of immediate problems and less to fact gathering and description of the problems as an end in itself. The research worker of the future must perforce not only describe the problem but proceed from this to propound a genuine and workable solution.

It has been in this realm so often in the past that the social scientist, as compared with the physical scientist, has been handicapped. With slender resources and, facing the necessity of making a showing, the social scientist has been tempted to publish a bulletin or manuscript, if for no

other reason than to display some tangible evidence of the prodigious labours he has put forth in the task. On the other hand, the physical scientist has not always been burdened by the necessity of producing positive results—in fact, where justified, negative results have in many cases found equal favour. But often he has had the further advantage, that in spite of being confronted by negative results, he has been able to continue his researches until a workable solution of the problem has been found. We must strive to obtain some degree of the freedom enjoyed by the physical scientist for the social scientist in order that the latter may carry his researches to the point of solving problems. This means that the social scientist cannot long continue, as a general program, the descriptive and fact-gathering techniques, and the terminating of his researches at the point of describing the problem.

Perhaps the solution to this matter in the future will be a much greater degree of integration of research programs in the social and physical sciences. To some extent this has been carried out already, but we can go much further in developments of this kind. In fact, a great deal may be done by "cleaning our own house" of the social sciences by closer co-ordination of research programs.

Discussions with fellow workers in the physical sciences suggest that they would welcome a much greater degree of co-ordination and integration of research projects. Perhaps the agricultural economist will take the lead in this matter and might put forth a greater effort to familiarize himself with developments in the field of the physical sciences. Close association of the agricultural economist within an organization such as the Agricultural Institute is a good omen in this respect.

Lest this paper be interpreted as a criticism of past research in agricultural economics, it would perhaps be well to refer, even if there is some overlapping with Dr. Booth's paper, to past efforts. Do not gather from my previous remarks that all the research done in the past has been lost or is "water under the bridge". A very great deal of it has been extremely valuable to the teacher, the student, the extension worker, the administrator, and the maker of agricultural policy. A good deal of it will be continued with continuing need for such information. In some cases it will be necessary to find and describe the problem before carrying out the further research necessary to its solution. But the developments mentioned heretofore have already brought about, and will bring, a further shift in emphasis from the fact-gathering, descriptive research to research directed to problem solution. This emphasis may come about, without diminishing the existing volume of research, through a large increase in the total volume of which the greater part will be research of the latter type.

In closing, emphasis is placed on the facts that we face a new era, that existing procedures and methods of research are not satisfactory in solving current problems. For the future a dynamic research program in agricultural economics will be required to meet and solve day to day problems. To assist in this task, we should seek improvement in the collection and dissemination of data basic to research programs. It is to be hoped also that ways and means will be found for financing research in agricultural economics on a private basis in order that full opportunity may exist for free and unfettered appraisals of general policy with respect to Canadian agriculture.

AGRICULTURAL POLICY AND AGRICULTURAL ECONOMIC RESEARCH¹

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This introductory consideration of the above subject will proceed somewhat in the following order. As a first step something will be said regarding agricultural policy as such. Following that, an attempt will be made to show the relationship between agricultural policy and agricultural economic research. Finally, assuming this relationship to exist, it will be necessary to say something about the general objectives of both the agricultural policies and the economic research.

AGRICULTURAL POLICY

In respect to agricultural policy, the first observation that may be made is that it is becoming not only more complex but increasingly economic in character. While there are several reasons for this, the fact is that, as time goes on, governments, willingly or unwillingly, are concerning themselves more with the business, as distinct from the purely technical, aspects of agriculture. Governments are more and more entering business, including the agricultural business. The second point is that it is becoming ever more necessary to regard agricultural policy as part of the general economic policy. This, of course, is bound to be the case as agriculture becomes increasingly commercialized or less self-sufficing in character. What this really signifies is that it is becoming ever more necessary, when formulating "so-called" agricultural policies, to see that they are properly integrated with those pertaining to other sections of the general economy. Another way of putting it is to say that it is getting ever less possible to have a policy designed for the specific benefit of any particular group such as the farmers. Moreover, in view of recent experience, farmers might very well conclude that a general economic policy which results in maintaining full employment is a far better *agricultural* policy than one calculated to achieve some specific agricultural objective such as increasing the efficiency of agricultural production or marketing. In the third place, it should be noted that Canadian agricultural policy is becoming more and more integrated with world policy. In other words, agricultural policy is becoming more international in character. This is particularly true in respect to countries like Canada which have large scale dependence on foreign markets. In view of this dependence it seems obvious that the basic nature of Canadian agricultural policy must be the result of international decisions.

RELATIONSHIP OF ECONOMIC RESEARCH TO AGRICULTURAL POLICY

To the extent that policies have to be economic in character, it would seem that their formation and execution should be accompanied by economic study and research. Common logic suggests that agricultural policies, both general and specific, should be based deliberately on the fullest possible

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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measure of research. This remains true even though, in a democracy, policies decided upon ordinarily represent not only a compromise between what should and can be aimed at but a cross between the suggestions of pressure groups and those supplied by scientific advisers.

This relation between research and policy making, however, can be considered from at least two standpoints. One may consider the *manner* in which research influence is exerted. In the second place one may consider the *kind* of influence which may or should be exerted by research. In respect to the manner or method, economists and economic research may influence policy either directly or indirectly. That is research may be undertaken with the deliberate objective of evolving a policy or it may merely result in a more scientifically informed public opinion which will, in turn, reflect itself in sounder policies. It is probably true to say that, thus far in this country, the economist's main contribution to agricultural policy in the larger sense has been through research results, dissemination of relevant factual data and a continual education of the general public in economics. In other words, the main contribution has been made indirectly. While this type of influence has been, and will continue to be, both valuable and extensive in the aggregate, it is our feeling that the future will necessitate an increasing amount of research deliberately undertaken in order that policy may be based upon its results.

The question of the kind of influence which research should exert on policy is, however, probably more debatable and also more important than the precise manner in which this influence is exerted. In this connection there are several possibilities. For example, research may be used to determine whether an existing or proposed policy is wise or otherwise. Again, it may be employed to develop programs which will be of assistance in implementing any policy deemed to be desirable. In the third place, research may aid in securing an accurate interpretation of an existing or proposed policy and thereby help to ensure more ready acceptance of it. Such an interpretation would indicate just how far the policy in question might be expected to achieve the objectives sought. Finally, research may well reveal whether, in a given set of circumstances, there is need for any special policy. Perhaps the matter can be stated more clearly by indicating some of the specific purposes for which economic research should be used.

For one thing, we believe that there should be an analytical examination of the actual existing policies and programs in order that an unbiased appraisal of them may be obtained. In the same way, any policies and programmes that are in the serious-proposal stage should be subjected to a thorough, objective examination. Thirdly, on the basis of extensive studies of past experience, the current situation, and actual and proposed policies, constructive research should be directed to the positive task of drafting proposals for policies that seem likely to meet the needs of the situation and to avoid undesirable consequences.

KINDS OF POLICIES

These last statements suggest that any research which is related to policy formation should give a good deal of attention, first, to the determination of policy objectives and second, to the nature of the policies

most likely to attain the objectives selected. In the matter of selecting policy objectives there is room for considerable difference of opinion. One recent writer,¹ for example, suggests that the whole field of agricultural policy should be divided into two main sections. The first would consist of an agricultural production policy which was aimed at making the most effective possible use of available resources. The second section would be designed to further the welfare of farm people and would be concerned with the distribution and use of income among farm people. The same writer adds that, thus far, the United States has not formed its agricultural policy along these two lines and that failure to do so has led to several serious mistakes. He further adds that economists should play a leading part in showing governments and practical policy makers what the flaws in present or past policies are, or were, and what the general nature of future policies should be.

While the two-fold division mentioned above may be reasonably all inclusive, there are probably many who would say that the main objectives of agricultural policy should be:

- (a) to protect natural resources against wasteful exploitation and neglect,
- (b) to facilitate their effective and economical use for the longer run,
- (c) to raise the level of efficiency in agricultural production and marketing,
- (d) to promote advances in the standard of living of those engaged in farming,
- (e) to increase their security against natural and economic disasters.

There are still others who might insist that the paramount objective should be the fullest possible satisfaction of the nutritional requirements of people everywhere. These suggestions or citations will suffice to indicate how varied the policy objectives may be. They may also suggest a need for some rather fundamental research before objectives are finally decided upon.

When it comes to the kind of policies most likely to reach the objectives, the possibilities are both numerous and varied. We can, for example, divide policies into those which are designed to bear directly upon agriculture, or those engaged in it, and those which, although designed primarily for other purposes, are likely to have significant effects upon agricultural developments. In this latter category may be included immigration and industrial tariff policies; railway and highway construction policies; flood-control, water-power and reforestation policies; currency, taxation and general fiscal policy; and special anti-depression, or full employment, policy. It is also possible to divide policies according to whether they are active or passive, and also according to whether they are emergency or short-run, or continuing or permanent. Moreover, it seems desirable to distinguish between a policy and a program. In this connection, we would suggest that a policy be considered as a course of action, followed (or to be followed) consistently, for a period of years. Programs, on the other hand, might be thought of as the detailed changing measures by which attempts are made to give effect to policies.

¹ See article by T. W. Schultz in May, 1946, issue of *Journal of Farm Economics*.

TYPES OF ECONOMIC RESEARCH

From what has been said it may be reasonably concluded that economic research, which is designed to assist either directly or indirectly in policy making, must have as its purpose either the *choosing* of objectives or the *achieving* of objectives. It may even be concluded that, if all such research is included, it will be difficult to suggest any type of economic research that is not somehow related to agricultural policies. That is probably true and as it should be. In order, however, that the relationship between research and policy may be indicated in a somewhat more concrete form, we may perhaps conclude this introductory consideration of the whole matter by offering a number of specific research suggestions.

SUGGESTIONS FOR FUTURE RESEARCH

There are a number of policy suggestions that are currently being presented or urged by this or that individual or group. In view of the very considerable measure of support for (as well as opposition to) such suggestions, it would seem highly desirable to have them closely scrutinized by the best available research talent. For example, further careful research is needed to determine the degree of soundness, the possibilities and limitations, of the parity price and parity income concepts. Similar research is needed to decide just how sound it is to aim at providing farmers with a living standard equal to that of some other classes. Similarly special studies are needed to determine the fundamental soundness of such suggested objectives as price and income stabilization, production control, the ever-normal granary plan, crop insurance, agricultural protectionism, international commodity agreements, subsidized food consumption, subsidized production of protective foods so that their consumption may be stimulated, or the wholesale encouragement of agricultural co-operation. Again it would appear to be most desirable and opportune to undertake a study of the impact of widespread acceptance of nutritional science in agriculture. This new approach which, in effect, suggests that the amount and nature of agricultural production should be determined in accordance with nutritional requirements, necessitates and deserves a lot of new thinking.

Speaking more generally, one might say that the economic research needed in connection with current and future policies should include the following:

1. Research designed to bring production more in line with the principle of comparative advantage and the requirements of good nutrition.
2. Research designed to indicate producer and consumer response to price changes.
3. Research designed to indicate the kind of rural welfare policies required.
4. Research aimed at achieving increased efficiency in production and marketing.
5. Research aimed at expanding demand.
6. Research designed to assist in transferring the need or desire for food into an effective demand.

In our view, the problem of maintaining a satisfactory demand for farm products will prove to be the most important and most difficult in the years that lie ahead. While its solution will require much more than agricultural economic research, in the ordinary sense, there can be little doubt that such research must form an integral part of any really satisfactory solution. In this connection, it might be suggested that the relationships between agriculture and the other sections of the economy should receive special consideration in future research undertakings.

Finally, we would suggest that future agricultural economic research projects might be placed in one or other of four general classes. The first class would include all those related to the economics of agricultural production. They would include research in respect of each of the several production factors as well as that having to do with the manner in which these various factors were combined. The second class would include everything relating to the marketing of farm products. There would be some projects designed to secure greater efficiency in the performance of the marketing functions. Others would be primarily concerned with market maintenance or expansion. A third class would include projects relating to farm prices and income. The fourth group might comprise all studies of a socio-economic character. Such studies would investigate the many social and economic implications of modern technological developments. Some of these implications are serious enough to suggest that one of our most serious problems is that of finding a satisfactory social adjustment to technological changes. It is the problem of how to overcome what is sometimes referred to as the cultural lag.

WHITHER RESEARCH IN FARM MANAGEMENT?¹

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It may help us to orient the shifts in emphasis if we realize that farm management belongs to the inductive sciences, or those sciences that concern themselves with facts. By philosophic definition the inductive sciences are said to consist of four steps in sequence, namely; (1) Observation, (2) Hypothesis, (3) Inference and (4) Verification. The aim of all sciences is to establish laws concerning the activity of the universe, which will assist us in understanding or in controlling our environment.

Those who are familiar with farm management surveys, as conducted in times past, will recognize the surveys and the relationships found, as the first two steps of inductive science, namely observation and hypothesis. The more careful research workers of the past avoided drawing inferences because they felt that they should not do that unless they could also follow up with the fourth step—verification of these inferences. The fact is, of course, that there are very few inferences for which we have developed any checking techniques.

However, this very cautious approach has been subjected to criticism in recent years. The severest critics have pointed out that research only becomes useful when inferences are drawn as the basis for an action program. An illustration of this point would be a survey of dairy farms which indicated a relationship between production per cow and labour income. This hypothesis only becomes usable when we note that the relationship is causal, and that a farmer will move into the higher income group if he can step up his production per cow. Of course, we can leave these inferences to the farmer, and to extension workers, but there are many objections to this policy: chief among these is the fact that they do not know how the study was made and hence are not in a good position to draw correct inferences from it (either as to the strength of the relationship or the conditions under which it would apply).

The resulting reactions among farm management workers to this criticism has varied considerably. In general, the research workers in the United States now agree that conclusions, to be accurate, must be drawn by the research workers. Some of these workers would say that past studies have indicated what the relationships are; that it now remains to draw the inferences in a way that will translate them into a program worked out for individual farm budgets. At first glance, this method might seem to offer a way to put our inferences to the test by following them up with a study to verify them on the original farms used in the survey. However, while there have been budget studies made and published, as yet there has been no attempt to follow them up and see if they were correct or not.

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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RELATIONSHIPS AND INFERENCES

The more conservative research workers point out that inferences are not likely to be more accurate than the hypothesis from which they are drawn. Our knowledge of relationships in farm management is by no means complete. Take our old friend "size-of-business" as an example; it was one of the earliest factors to be brought out by farm management research. New York, a state that has been largely classified into economic land classes, shows the tendency for a concentration of small farm businesses in the low classes of land, and a concentration of relatively large farm businesses in the best land classes. Thus, grouping by size-of-business also tended to be a grouping by economic land class. Rates of production per cow, or per acre, may be related to types-of-farming and soil-type.

Thus the older census types of farm management surveys served a very useful purpose in focussing attention on the factors affecting farm income, but they did not provide a good basis for studying the strength of those relationships or the variations which occur in different situations. The problem is created by the very large number of variables you introduce when you include every farm in a chosen district in your survey. Something can be done to hold variables within reasonable limits by sorting one factor and then subsorting the factor you wish to study. However, just to list the factors you would like to hold constant will plainly indicate that this method becomes impossible in actual practice. Even if funds and personnel were available to obtain the thousands of records needed, you would have to take in so much territory that it would necessitate introducing additional variables and hence defeat the original purpose of holding variables nearly constant.

PURPOSIVE AND STRATIFIED SAMPLING

The more intelligent approach is to define first what you wish to study, and then hold the extraneous variables within narrow limits by definition of the group to be studied. This is really a combination of purposive and stratified sampling. An excellent example of the procedure is to be found in a study of dairy farms in Montgomery County, New York in 1945. There a town was chosen where all the farmers shipped milk to New York city. It covered a one-year period which was the same for all farms. The farms had to be producing wholemilk with all or most of their income from that enterprise and have at least 6 cows milking and be located on No. III or No. IV class land. Thus, the range in location with respect to market, price, type of farming and land class, was held within narrow and known limits and would not be likely to upset, or exaggerate, any reasonably strong trends to be found in the relation of the farm management factors to labour income. There is also a probability in future studies of going further and holding one or more of the farm management factors nearly constant, while variation in the other factors are studied. The survey with stratified sampling to control variables, offers a sound basis for studying relationships, drawing sound inferences and, to some extent, checking those inferences.

It is safe to state that the present trend in farm management research is strongly towards limited objectives with purposive and stratified sampling.

With this goes a tendency towards smaller samples, first because large samples are not so necessary with some of the variability eliminated, and partly because larger samples are likely to introduce more variables.

There is a tendency to obtain purely descriptive data by more extensive methods and wider coverage than labour income studies permit. Since this borders on land utilization, I will not discuss it here, except to point out that determination of the problem, before stratification for relationship studies, may require classification of the farms on a farm unit basis. If for example, you suspected that there was a maladjustment in the type of farming in say Leeds county, Ontario, you would first need to know what the situation there is. This might be learned by using aerial photographs and locating the farm boundaries with the aid of a few local people. With a planimeter you could then determine the total acreage and acreage under cultivation on each farm. The general plan of the farm and approximate intensity of land use could also be determined for each field. Classification of buildings would yield some information concerning types of farming, size of live stock enterprises, and the problems involved if a change of type was found desirable. Such a study is now being organized in New York State as a prelude to a study of relationships. In Virginia land classification is done on a farm-unit basis. This classification would also serve as a basis for stratifying farm samples.

WORK SIMPLIFICATION

While this search for methods that will give us better pictures of relationships is going forward, another line of research is underway. It takes the form of very intensive studies of certain farm management factors with the aid of time and motion studies, or cost accounts, or both together. The most advanced form of this type of study, at present, is the Work Simplification Project, which was organized on a national basis in the United States with headquarters at Purdue University and with the Universities and Experimental Stations of twelve States co-operating.

In the *Journal of Farm Economics* for February 1946, Lowell S. Hardin and R. M. Carter presented "An Analysis of Work Simplification Research Methods and Results". The authors state that the five main steps involved are to:

1. State the problem and collect input output data for existing methods.
2. Classify and analyse the data.
3. Formulate a hypothesis to show how work methods may be improved.
4. Check and validate the hypothesis.
5. Make available, by approved techniques, any discoveries or developments.

A study of the above steps will indicate that the first four are the four steps of all inductive sciences. In other words, the authors believe that it is possible to carry this type of research right through to the stage of formulating an inference and verifying it.

An example of how this would be accomplished is to be found in a study of chores when caring for poultry in New York State. The problem was stated to be the discovery of the most efficient way to do the chores.

County agents suggested about forty poultry men whom they considered the most efficient in their counties. From these, eight were selected as offering the widest range of techniques to be studied. Research workers, equipped with stop-watches and prepared notation pads, spent enough time at each of these farms to complete records on time and travel over a sufficient period to determine the normal time required in detail. A floor plan of the buildings to scale and with all key distances measured, was prepared in advance to assure accuracy of distances.

The second step was performed in the office, where each of the steps in chores were classified as time and distance travelled in watering, feeding or other jobs. The differences in time required by the different methods used were computed. When this was calculated on an annual basis, the amount of walking to care for 1,000 hens varied from 111 miles on farm No. 1, to 535 miles on farm No. 8; the time varied from 125 to 670 hours. Thus about five times as many hours and miles of walking were required on farm No. 8 as on farm No. 1 to care for 1,000 hens.

The third step was to select the differences in procedure that accounted for the differences in time and movement. Then, the inference could be drawn that other farms could save this time by adopting the most efficient practices. When any of the farms studied change their system, it will be possible to check the inferences by another time-and-motion study on the new system. The reason it is possible to carry the research through the four steps in this method is that the variables have been reduced to a minimum.

The above example mainly involved labour. If the saving of labour involves an outlay of capital, there would be two interchangeable factors. The only unit of measurement which is common to both is the dollars of cost. In the article mentioned above, it was stated that the procedure would be most useful if linked with cost accounts. Some use has been made of cost accounts in this procedure¹ and more is being considered.

CONCLUSIONS

The intensive study techniques both supplement and implement the studies on causal relationships in farm management. It is not sufficient for a farmer to know that there is a relation between his labour-efficiency and his labour-income. He needs to know, in some detail, what he can do about it! Work simplification provides the best basis both for studying, and demonstrating, the best methods to get high labour efficiency. In the present stage of farm management on the continent there is much to be gained by bringing the least efficient operators up to the level of the most efficient. For this purpose the relationship studies are the only type likely to cover enough situations with the amount of funds and personnel available. We need continuous advance in efficiency if we are to have continuous advance in our living standards. This requires constant advance by the leaders as well as the laggards. Few farms are managed at above average efficiency in all the factors affecting income, and none are as high as they might be. The intensive study of work-simplification offers a more satisfactory way of advancing the techniques of our most successful farmers than does a study of relationships alone.

¹ See "Costs in Harvesting Hay by Different Methods", Agricultural Economics Department, Cornell, mimeograph, Aug., 1945.

WHITHER RESEARCH IN FARM CREDIT?¹

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DEVELOPMENT OF AGRICULTURAL FINANCE

The problems of farm finance have existed in Canada since the early days of settlement. In its earliest development, agriculture in this country was subservient to the fishing and fur trades, and had to rely on various and diverse agencies to meet its financial requirements. These agencies were all of a private nature such as mercantile companies, British importers, correspondents from London and other centres.

Unlike the developments in the United States, government intervention in farm credit did not appear in Canada until the period of the first World War. Since that time, direct action by government in the provision of credit to agriculture has progressively increased so that to-day we find government directly involved in the long-term-credit field through the Canadian Farm Loan Board and Veterans Land Act, and, in a less direct manner, in the production and short-term-credit field through the introduction of the Farm Improvement Loans Act.

The Canadian agricultural industry today involves large investments. Estimates of farm capital in Canadian agriculture for the year 1943 indicate an investment of \$5.28 billion in farm real estate, implements, machinery and livestock. For the same year the gross value of agricultural production amounted to approximately \$2.25 billion³. To this may be added an estimated value of \$1 billion in household equipment, cash on hand, bank deposits, victory bonds, stock in co-operatives and other securities, etc. Thus the total assets of Canadian agriculture for the year 1943 may be estimated to be approximately \$8.5 billion. It is likely that this figure is higher now, due to a rise in values and probable larger capital accumulations during the last two years.

On the liability side, the statistics on Canadian farm debt are not as adequate. According to the 1941 census, the total owed by farmers against farm mortgages, agreements for sale and debts covered by liens, amounted to approximately \$652 million, of which \$629 million involved farm mortgages and agreements for sale.⁴ This was a reduction from 1931 of about \$42 million in real estate indebtedness. This amount will now be considerably lower, according to all indications respecting farmers' debt repayments.

Non-real estate farm indebtedness no doubt has also reached a low point in the agricultural credit picture resulting from buoyant farm incomes and the inability of operators due to shortages, to replace farm supplies and equipment necessary to maintain the farm plant. Unfortunately, information on this type of credit is not readily available in Canada, if at all.

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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³ Canada Year Book, 1945, Dept. of Trade and Commerce, Canada, pp. 200-202.

⁴ Eighth Census of Canada, 1941, Dominion Bureau of Statistics, Preliminary report.

This brief review of agricultural finance suggests the importance of credit to the industry. It emphasizes the need for proper credit facilities and the application of methods that will enable a credit system to supply the credit needs of the industry so as to accomplish the objectives aimed at in the industry. At the moment the demand for credit by farmers is not very pressing. It will increase with the increasing number of young men returning to farming, both from the armed services and from employment in war factories or war induced work. Older farmers in their desire to retire, will want to realize on their equities, making credit necessary. Replacement of farm equipment and buildings will also create a demand for farm credit. The trend in this direction is already evidenced in the increasing volume of loans guaranteed under the Farm Improvement Loans Act. To determine what constitutes an adequate credit system, research in farm finance can make an important contribution.

A program of research in farm finance could not be complete without prior appraisal of research in the field. This involves a review of research completed, a knowledge of research in progress and some familiarity with contemplated projects. The writer only had a limited time in which to investigate this phase of the work. However, the investigation that was possible did not reveal any developments in the latter two aspects of research directly concerned with farm credit. There are some studies in progress on problems of farm management, land appraisal and land use which relate to farm credit, but in respect to projects of direct concern to credit, none could be discovered. This is due, perhaps, to the scarcity of trained personnel, the lack of funds and to the extraordinary demand during the war on the time of those who could have carried on such studies.

It was possible to review in varying degree of detail about 60 publications dealing directly with farm credit in Canada. As far as could be determined, this covered about the entire portfolio of material available on the subject. The material reviewed divided itself into the following categories:

1. Acts of Legislatures and Parliament, explanatory reports and articles with respect to the operation of these Acts; reports by credit agencies indicating their loaning position and some statistical material.
2. Commission and Committee reports investigating the need for farm credit, study of facilities in other countries, and recommendations for the establishment of credit agencies in Canada;
3. Historical presentations and analyses of farm credit in Canada, dealing mainly with the development of the credit facilities and factors influencing that development;
4. Loan experience studies within areas and regions treating the problem from the point of view of capacity to repay and the nature of the loan terms.

This brief review of the material dealing with farm credit suggests two situations. First, that the amount of research done in Canada in farm credit is small and therefore the field is clear for a complete, well integrated

program of research. In the second place, the proportion of publications of an analytical nature is small compared to the number published as direct records of credit laws, explanations of the laws and of credit agency activities. The ratio is about 1 to 4. In other words, even assuming that the material reviewed does not represent the complete list of published information on the subject, it is representative enough to indicate the trend in the nature of the work. This observation is not designed as a criticism, but rather as a warning, so that when a program of research is outlined, the emphasis should not be placed on one aspect of the problem. That this can happen is evidenced by criticisms of research programs in the various fields of agricultural economics in the United States.³

OBJECTIVES

A first approach to the study of farm credit must give consideration to the objectives to be attained. The prime objective of credit to agriculture in the past, particularly of farm mortgage credit, was to facilitate farm ownership. The question that arises now is whether this objective has been attained. Farm ownership and operation are becoming progressively further separated in the cultivation of the land. Technological developments that tend to increase the size of farm, permit a lesser number of operators to cultivate larger acreages, but the capital required to own that entire acreage is generally beyond the capacity of many individuals to accumulate. It is suggested that ownership of all the land by its operators may tend to hinder those climbing the agricultural ladder, and prove a handicap to those seeking an efficient size of farm. Therefore, it can be argued, the purpose of farm credit may be considered from other points of view as well as that of farm ownership.

Our agriculture developed in a competitive economy. Under such an order, farm credit was a matter of concern only between the lender and borrower. Each loan, if it was a good one, was designed to economize the resources of each party to the loan. It presumed the most efficient use of resources; and each loan was expected to be self liquidating. Today, however, we are departing from this position. Government intervention in the credit field, either through easier credit or through debt adjustment, enables less capable operators to work land without full regard for maximum utilization of resources.

The tendency for government to participate in farm credit is an extension of government policy in directing the industry. Governments are actively involved in agricultural marketing, production controls, prices, land use, settlement and credit. Such action is decreasing the freedom in agricultural enterprise previously experienced. This greater government control of the industry, the tendency away from ownership, and the probable lesser importance of ownership as compared with income in agriculture must have an important bearing on the objectives of farm credit.

³ See: F. L. Thomsen "A Critical Examination of Marketing Research." *Jour. of Farm Economics*, Vol. XXVII, Nov. 1945.

F. F. Hill, "Research Developments in Farm Finance." *Jour. of Farm Economics*, Vol. XXVIII, Feb. 1946.

DEFINITIONS

A study of the objectives of farm credit naturally leads to a definition of credit. As commonly considered credit involves financing in a manner whereby the enterprise will provide a return to pay all the costs of the loan, increase returns to the operator and enable repayment of the original amount. This may be considered as business credit. Within recent years, however, we have experienced a departure from this form of credit in agriculture. We have developed an easy credit, with a welfare aspect, designed to assist certain elements in the industry because to do so is in the best interests of the nation. Welfare credit, if it may be so designated, is a recent development in Canada, having been resorted to mainly since the depression of the thirties. Such credit disregards previously considered safe margins of equity by the borrower, provides for uniform and low interest rates, irrespective of costs and risk, and, in the case of the Farm Security Act in Saskatchewan, provides for cancellation of debt under certain conditions.

In line with the need for definition of credit, there is the need for definition of a farm. The 1941 census defines a farm as all the land of one acre or more, operated by one person with his own labour or with the assistance of his family, or with hired help, which produced in 1940 agricultural products to the value of \$50 or more. It is readily seen that such a definition does not distinguish sufficiently between the various types of farms.

The credit needs of commercial farms are vastly different from those in the subsistence category. Size and type of farm are important in the determination of the kind of credit required and the terms and methods of administration. Within each group is to be found a high-risk area where any sort of loan cannot be of permanent benefit to the individual.

The wide variations in the farming methods used, in the farm incomes, and in all the other characteristics of farms and farming in Canada must be recognized in the formulation of any agricultural policy such as farm credit. Without proper definition and differentiation of farms, we get a false assumption of uniformity in the industry which is bound to influence our thinking on problems of agriculture.

Special forms of credit for agriculture have always been defended on the basis of the peculiar characteristics of the industry. Agriculture is not a homogeneous industry. It is made up of numerous small, individual and diverse units existing even within the same general type of farming, and within a single geographic area. It is affected by the length of production period, by fluctuating prices and output over time. Transfer of ownership at least every generation adds further to the problems in financing agriculture. The risks caused by these peculiarities of agriculture have been responsible for a higher cost of credit to the industry and have necessitated a different set of credit facilities to serve its needs. Agricultural credit has been divided into long-term, intermediate, and short-term and lenders have generally used this classification, as the basis of extending credit to farmers, rather than to attempt to adapt the credit provisions to meet the differences that exist among individual farms as caused by local circumstances, and changing technological and economic conditions in agriculture.

A re-examination of agriculture in relation to its financial needs would appear due now. There undoubtedly is an accumulation of changes in the industry caused by the war, population movements, government action in respect of prices and production, as well as from technological improvements, notably the greater extent of mechanization. We should attempt to obtain the information concerning these changes and to determine if there is any clearer definition possible among individual farms and regions in their use of credit. We require information with respect to the use of capital by farmers, and the outside limitations in equity requirements for different farms and areas.

A question that should be investigated and studied is how corporate-type of finance may be applied to agriculture. Land is a non-depreciating asset, and therefore affords satisfactory security for any loan. How can our credit be organized to permit farmers to operate on continuously borrowed capital paying the interest only? The answer to this question may also provide a clue on how to avoid the expense and physical disturbance occasioned through the transfer of ownership of a farm at least once every generation.

Research in the characteristics of agriculture in relation to its financial needs will provide answers not only to the above but also to questions of capital use, capital accumulation and depletion on the farm according to type and region.

CREDIT TERMS

Over the years, progress has been made in Canada in the matter of credit terms. In the case of real estate mortgages, the amortization principle has been adopted, the repayment term has been extended to 20 or 30 years, and provisions for complete repayment at any instalment date are included in almost every farm credit contract. More flexible provisions are also provided in the shorter term credit field, notably those guaranteed under the Farm Improvement Loans Act. Further adjustments in the terms of agricultural loans, however, are needed to fit the peculiar requirements of agriculture. Agricultural income has a high degree of variability which is reflected to the individual farmer in a fluctuating capacity to pay debts. A rigid amortization plan does not consider such fluctuations. A repayment plan providing for larger payments during high income years, to offset inability to meet the instalment in poor income years, seems a desirable feature in farm mortgage credit. Dr. Hudson pointed to this fact very clearly in his study of loaning experience in Saskatchewan.⁴ A variable repayment plan, that will make it mandatory for larger payments in high income years, within certain limits of debt, would seem desirable. At least, it would appear that a definite statement, included in the loan contract, as to amounts and conditions of a variable repayment plan, even on a voluntary basis, may serve a very good purpose. It is admitted that lenders prefer a definite repayment plan and borrowers prefer a variable plan, in poor years more so than in good years. If such a plan will aid in providing more satisfactory credit, and a more suitable repayment program, it is one that should be recommended and adopted.

⁴ Factors Affecting the Success of Farm Mortgage Loans in Western Canada. S. C. Hudson, Dominion Dept. of Agriculture Tech. Bul. No. 41. April 1942.

Mention has previously been made of the uniformity in loan terms as contrasted with the method of fitting loan terms to the varied needs of individual cases. This is especially significant in the matter of interest charges, loan fees, and differentiation of risk, among the various farms and regions. There are limitations mainly of an administrative nature in defining terms on such a basis, but it is a matter of sufficient importance to warrant a possible solution. Considerable progress could be made in fitting loan terms to different farming conditions, and for various regions, by studying costs of loaning, risks involved, pure interest on an alternative opportunity basis and repayment plans. In this regard, attention should be given to the possibility of loan insurance or guarantee as a possible means of safeguarding the lender's investment. The National Housing Act, and the Farm Improvement Loans Act, are based on this principle. Research should be directed towards determining its use in all agricultural loans. It may provide an answer to the financing difficulties in extra-risk lending.

PRIVATE CREDIT

Since 1930, private lending institutions have almost completely withdrawn from the farm credit field in Canada. Neither real estate nor production credit was available to farmers from private sources; this resulted in a more complete entry into this field by government. With the exception of the credit provided by the Canadian Farm Loan Board, government loans were provided on an emergency basis. Until the passage of the Farm Improvement Loans Act shorter term credit was spasmodic and unorganized in terms of a system. The periodic withdrawal of private agricultural lending agencies during depression periods places an extra burden on government and emphasizes the deficiencies in our credit system with respect to agriculture. It stresses the need for information on the position of the various credit agencies, and the extent of participation expected from each. Some agreement should be reached as to the role of government in agricultural financing. Should it be a pace setter, should it assume a significant position in supplying the needed volume of credit, or should governments only appear in emergencies to "bail out" private lenders.

GOVERNMENT CREDIT

A casual examination of government agricultural credit policy in Canada would lead one to the conclusion that it is designed to leave this field primarily to the private agencies, seemingly a proper decision in an individualistic economy. This policy places definite responsibilities on private agencies among which continuous provision of credit is of major importance. It does not appear correct that private institutions should appear as competitors, under favourable conditions (to them) of lending and withdraw, when conditions are not so favourable or when alternative opportunities are more favourable. If credit is to benefit agriculture it must be ample and continuous. Ability to repay, and not security alone, must be recognized as the criterion for lending. In the past, private lending agencies have extended credit to farmers during periods of inflated prices and values, considerable repayment being made under conditions of deflation. Such repayment has been made possible, to a degree, through farmers refinancing

with government agencies. This places an extra burden on government and the taxpayer through necessitating subsidized credit. To clarify the respective roles of the various credit agencies, research is necessary.

CO-OPERATIVE CREDIT

Any consideration of lending agencies, and their suitability and adaptability to agriculture, must focus attention upon the place of co-operative credit agencies. The use of co-operative credit in agriculture, especially as exemplified by credit unions, leads to the conclusion that such agencies may provide credit on a satisfactory basis. One very attractive feature of this type of credit agency is its closeness to the borrowers. Being credit "on the spot" co-operative agencies can adjust the type and terms of their loans to better suit local conditions. Furthermore, such credit is primarily based on need and ability to repay.

Providing proper rediscounting privileges are available to co-operative credit agencies, it would seem that such agencies can enter every field of farm credit on a continuous basis. The experience of the Farm Credit Administration indicates the practicability of co-operative credit in both the long term and shorter term fields. The defects in that system which converted it from a purely co-operative agency to a semi-governmental agency may be traced in part to the limitations and restrictions placed upon it, regardless of circumstances, by exponents of cheap and easy credit.

A full appraisal of co-operative credit is necessary to answer questions with respect to the following:

1. Cost of loans to the agency and to the borrower;
2. Use to which the credit is put and its effect on the borrowers' business;
3. Possibility of using the budget plan in lending, that is, extend the credit as it is required;
4. Repayment methods and their effect upon the farm business;
5. Effect of co-operative credit agencies upon the morale of the agricultural community as well as its welfare aspects.

CONCLUSION

The observations presented above are neither intended to be exhaustive of the topic, nor definitive. The objective was to point up some of the features of a desirable approach to research in the direct field of agricultural credit. Other aspects of the problem will suggest themselves as the various features discussed here are investigated.

While the discussion, as presented, attempted to restrict itself to credit only, it is not suggested that a program of research should completely segregate the study of credit from that of related fields. Considerable research has been conducted, and studies published, in farm management. In practically every one of these studies, the question of farm capital is considered. Farm management studies, however, have not dealt sufficiently with the question of capital use, accumulation and depletion. All studies observed by the writer, and there is a strong sameness among them, are mainly descriptive, and because of the use of the "average" in analysis, are

too general to provide definite conclusions with respect to credit. Perhaps that is the objective of farm management research. This fact, however, does not preclude the possibility of utilizing data obtained in these studies for further analysis with respect to farm credit. A similar observation may be made with regard to the land use studies in progress and completed. The point at issue is, that while research in farm credit requires the segregation of the several individual aspects of the problem, all these separate elements should be integrated into a whole, and co-ordinated with research work and conclusions in related fields.

It is not suggested that the determination and establishment of an adequate and suitable farm credit system will completely solve the agricultural finance problems. Prices of farm products, the degree of variability in income, the fluctuations in land values due to the rapid capitalization of fluctuating farm incomes, and many other factors, all have an important bearing on the operation of an efficient farm credit system as an aid in attaining the objectives of a progressive agricultural industry. But dealing with farm credit itself, Canadian lenders and borrowers require information of the kind suggested above. We require more complete statistics on farm credit, we need more descriptive research dealing with loan experience, and we require studies using the problem-approach to suggest probable future trends and developments in farm credit. This can be accomplished through a well integrated program of research in which government, private institutions and universities can well co-operate.

WHITHER RESEARCH IN LAND ECONOMICS?¹

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In order to delimit the scope of this discussion I wish to preface my remarks on research in land economics with a definition of the term. Land economics is defined by Ely and Wehrwein as "a science which deals with the utilization of the earth's surface, or space, as conditioned by property and other institutions and which includes the use of natural forces and productive powers above or below that space over which the owner has property rights" (5). Stated more simply, land economics deals with the utilization of land by man. The use of land must conform to natural laws. It is also influenced by customs, traditions, laws and institutions. In a commercial society, land use is conditioned by costs and income and will be determined largely by the maximum net profit. Land economists, therefore, must consider the physical, the institutional and the economic points of view. In attempting to indicate the direction which research work in land economics in Canada should take, it would seem desirable to examine some of the work which has already been done within the various branches of land economics.

LAND UTILIZATION

The most widely developed category of land economic research is land utilization. "In the applied phases, land utilization analysis consists of the study of the land resources of an area with a view to determining for what, and how, they may be most economically employed: in its pure science phases, it involves an attempt to explain existing uses of land and to develop a body of principles relating thereto" (3). The most common study in this class involves a description and extension of the land use of an area. Such studies provide a fundamental basis for work in farm management, land settlement, agricultural policy and other phases of agricultural economics (8). Land utilization is so closely associated with farm management that it is often difficult to note the demarkation of the two fields of work. While in farm management analysis, the point of view is usually that of the individual operator, in land utilization the social or collective point of view is of more importance. An important type of study which, while closely associated with farm management is more properly classified under land utilization, is types-of-farming. A new study of types of farming in Canada, which will be a revision and an extension of an earlier study by McArthur and Coke published in 1939, is at present under way (9). It is felt that such a study provides worthwhile information, not only in the field of agricultural education, but also as a background to the application of agricultural policies.

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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LAND CLASSIFICATION

A type of land utilization study, and one which has been in great demand as a general guide to the planning of land use, is that of land classification. The objectives of land classification are dealt with in some detail by Barnes (2). The general problem of classification, as expressed by Kellogg and Ableiter is, "To place objects classified into suitable categories, the better to study and remember their characters and to show their relationships" (10). There are two aspects of the problem of land classification, the physical and the economic. The former takes into consideration climate, soil, topography and crop adaptation, while the latter considers the highest economic use of land resources. Land classification has received much attention in Western Canada since the drouth period of the 1930's. In this area six studies of land classification have already been published by the Economics Division, Dominion Department of Agriculture and others are in the course of preparation. While three studies in land use classification have been carried on in Eastern Canada in recent years, it is imperative that more attention be given to this work in all provinces. Various measures of long-term economic returns have been used in land classification work. These indexes include building classification, tax delinquency, indebtedness and farm abandonment. Long term yield data has been used as the principal criterion in Western Canada. The technique developed in land classification work in this area is well described by Stewart and Porter in their publication on Land Use Classification in the Special Areas of Alberta (11). An effort is being made to develop research techniques in land classification adapted to the northern areas of the Prairie provinces. Recent experience by the writer in connection with a preliminary study of land use in Prince Edward Island suggests a new measure, an index of intensity as measured by labour in-put or number of man-work-units per acre occupied. This measure is based on the thesis that the degree of intensity by which the land resources of an area are exploited is the result of the long-term experience of individual farmers, and as such reflects economic returns. Results to date indicate a high correlation between this measure and soil type, valuation of land per acre and sales of farm products per acre.

While practice has dictated that consideration of the physical attributes of land must precede the consideration of its economic usefulness, it is suggested that land classification is a function on which the soil scientist and the economist can work to advantage as a team. Under such a plan the collection of economic data might be carried on in conjunction with the field work in connection with the soil survey. Such a scheme would provide for continuous consultation between the soil scientist and the economist.

LAND TENURE

Another important category in land economics is land tenure. Most studies in land tenure in Canada have been historical and descriptive in nature. In one or two instances, attention has been given to a basis for the establishment of rental contracts (13). In spite of public policy which historically has fostered freehold tenure, leasehold has been increasing in

importance in most provinces in Canada (4). In view of this trend, greater consideration should be given to the necessity of carrying on research work which will provide a basis for legislation to ensure greater security of tenure to the tenant and to provide payment to the tenant for capital improvements made and to the landlord for depletion of the soil and for damages to permanent farm fixtures. Consideration should also be given to the type of tenure best adapted under varying conditions in different parts of Canada. The desirability of public ownership of certain lands in the southern part of the prairie provinces has been indicated as a result of the crop history of this area.

LAND VALUATION

Another category in land economics which has received little formal attention from the research worker is land valuation. While some contributions in this field have been made as a by-product to certain studies in land classification and farm finance it has, for the most part, been neglected. Present inflationary tendencies in land values, as the result of an increase in the prices of farm products, have created an urgent need for research work in land valuation. If some of the disastrous consequences of the 1920's are to be avoided in the future, this type of research is essential. Land appraisal is a science and can only be carried out satisfactorily if the appraiser is provided with the necessary tools by the economist.

LAND TAXATION

Studies carried on in rural taxation have indicated great inequalities in the distribution of taxes levied on land. Research in this field should be directed towards a more efficient system of assessment and a re-distribution and a reduction of many of the costs of local Government which are borne by the farmer.

LAND SETTLEMENT

Early studies in the field of land settlement in Canada were largely from the historical approach. A number of worthwhile contributions to research in land settlement in the newer areas of Canada have been made in recent years by Gosselin, Boucher, Acton, Stutt, Van Vliet and Spence (1, 6, 7, 12, 14). Further extension of studies of this type together with an examination of land settlement methods used in various European Countries, notably Holland, is essential as a basis of future land settlement policy.

There is also great need for research in connection with property rights, contracts, registry, description and transfer of lands in Canada. Study of land prices and transfers over a period of years would provide a basis for extending and improving present statistics.

While an attempt has been made to indicate the direction which research in land economics might take, it has not been possible to deal with the subject exhaustively in the time allotted.

Much creditable work has already been accomplished in this field. It is to be hoped that the future will see an even greater effort being exerted to provide a fund of essential information on our land resources in Canada, which may finally culminate in an intelligent long-term land utilization policy.

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WHITHER RESEARCH IN AGRICULTURAL PRICES?¹

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DEVELOPMENT OF AGRICULTURAL PRICE POLICY

During the past twenty-five years price analysis has become an increasingly important sub-field of research in agricultural economics. The resultant class of agricultural economists known as price specialists, have concentrated on the study and interpretation of prices—in this instance more particularly the prices of farm products. Their field of research takes in all aspects of the price making process.

Research in farm prices cannot, of course, be confined to a compartment hermetically-sealed off from the other divisions of agricultural economics, any more than should the study of agricultural prices be entirely separated from price studies for other products. Price analysis naturally spills over into other sub-fields of agricultural economics, notably marketing, farm management and agricultural policy. As a matter of fact any detailed study of the production, consumption or marketing of farm products ultimately involves some phase of price research. For this reason, most of the projects in which price specialists engage also concern and involve collaboration with marketing economists, production economists and farm management specialists, and vice versa.

The important socio-economic changes during the last quarter century, punctuated by a major industrial depression sandwiched in between two world wars, could not fail to have profoundly affected the trend of agricultural price research. Economic organization has tended to drift away from "laissez-faire" towards a system in which a varying degree of economic control is more or less accepted. This process appears to have been greatly accelerated during World War II. At the same time, price research has rapidly passed through its adolescent stage of purely descriptive studies, followed by attempts to explain, and analyse, price behaviour. Before price analysis has reached a mature stage and before the depression-born pastime of price prediction and forecasting had reached anything like perfection, we found ourselves engaged in price control—an experience analogous to taking over a puppet show without much practice with the strings.

As a result of these developments, there has been a decided shift of emphasis in the agricultural price field. During the hey-day of farm management research, it was more or less assumed that price movements were pretty much out of the control of the individual farmer, and thus he should adjust his plans for the organization of his farm business in conformity with current price trends. In the depths of the depression, however, farmers found such procedure limited for there were virtually no profitable lines of agricultural production to which they might shift. This inevitably paved the way for demands by producers for public price support

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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programs. Agricultural prices were just beginning to emerge from the depression doldrums when World War II arrived. This brought about an abnormal demand for farm products but, before this situation had exercised maximum effect on farm prices, we entered the public price control period from which we have not yet emerged.

The present period of transition from price control to price stabilization seems then to be an opportune time for a brief look in retrospect as to where we have been going in the field of price research. Then we will be in a better position to face the question of the moment—Where do we go from here? It would be difficult to suggest in what direction agricultural price research should proceed, without making some assumptions respecting the probable trend of agricultural policy during the next few years. Can we assume, for example, that the legislation which created the Agricultural Prices Support Board in 1944 is indicative of a period in which stabilization of farm prices and income will be a fundamental objective of government agricultural policy? Can we also assume that centralized marketing boards, marketing schemes and other price stabilizing marketing agencies will continue to be widely supported?

If we accept these developments as likely to persist in the immediate future, research in agricultural prices should recognize this fact: price theorizing, based on purely competitive demand and supply relationships, will not be realistic if prices for farm products are not provided with some of the stability exhibited in the past by other non-farm commodities. If we are to have forward pricing arrangements for farm products, there will be less need for concentrating efforts on price forecasting, or on the familiar historical studies of seasonal, cyclical or long term price trends. Whatever research is attempted should rather be designed to assist the work of public price-administering boards.

If we are likely to experience a period characterized by a certain degree of price control and support for farm products, farmers will not be so concerned with making individual production adjustments to changing prices, as they will be in pressing their demands, through national and even international farm organizations, for adequate prices for, and efficient distribution of, their products.

AGRICULTURAL PRICE RESEARCH

In view of these trends so briefly outlined, what lines of agricultural price research seem most opportune?

Types of research studies in the farm price field, which have been or could be undertaken, exhibit wide variety. Among the more important might be set down the following projects: those

- (1) involving the collection and compilation of basic data;
- (2) involving studies of the general nature and behaviour of agricultural prices;
- (3) in price forecasting;
- (4) relating to price spreads and marketing margins;
- (5) involving problems of price control and support policy.

In a paper of this length, it is obviously impossible to enter into a detailed discussion of all of the various types of farm price research projects which might prove useful in the near future.¹ I will therefore confine the balance of my remarks mainly to projects which might assist in the intelligent administration of price control and stabilization policies.

In passing, however, I think it pretty well goes without saying that virtually no type of price investigation can proceed without basic data. There have been in the past many inadequacies here. Reliable price series for Canadian farm products are still too meagre, especially with respect to prices received at the farm. Price data for central, wholesale markets are reasonably satisfactory, but at most other stages in the marketing process from farmer to consumer, adequate price series are not readily available. In some cases, series which do exist vary in more than one of the three variable factors of time, place and form².

To remedy these shortcomings, two possible approaches suggest themselves:

- (1) Consideration should be given to the need for reporting and publication of more complete price data at various market points.
- (2) Existing sources of historical price information should be more fully explored, e.g., local newspaper files, records of local mills, elevators, creameries, stores, co-operative associations and farm account books.

In addition to providing more adequate basic data for the price investigator, there would be made available price information required in the examination of margins at various stages in the marketing process. We do not have in Canada as yet any up-to-date and comprehensive information available on price spreads from farmer to consumer, such as that compiled by the Bureau of Agricultural Economics in Washington. This might be a useful combined project for Canadian price and marketing specialists to embark on at an early date.

AGRICULTURAL PRICES SUPPORT ACT

Since we have already gone a long way in the direction of public price control and support programs for farm products, it seems logical to assume that a fundamental criterion in the selection of projects in price analysis, to be undertaken in the immediate future, should be their possible application in the administration of agricultural price policy. As a case in point, under the 1944 Agricultural Prices Support Act, we now have a Board empowered to prescribe prices for agricultural products in Canada and, to either purchase commodities at these prices, or pay producers any deficiency between the market price and the prescribed price. I do not know how the Agricultural Prices Support Board proposes to determine its "prescribed" prices, but surely it would welcome any assistance in the field of price research which would help to answer such practical problems as these:

¹ For a more detailed discussion of price research projects see "Research in Prices of Farm Products" edited by John D. Black, Bulletin No. 9 of Social Science Research Council, N.Y. (1933).

² For further discussion on the variable factors in price research problems see Shepherd, Geoffrey S.—"Agricultural Price Analysis" p. 38-39. Iowa State College Press (1941).

effects on supply of various levels of prices for each commodity; what seasonal or regional variation in prices or grade differentials are desirable; what level of domestic consumption may be expected at various prices.

Another phase of the Agricultural Prices Support Board's responsibility has to do with securing "a fair relationship between the returns from agriculture and those from other occupations". This of course introduces the oft-quoted but too often misunderstood, "parity price" idea. Here is an opportunity for the price specialist to shed more light on what is involved in the concepts of parity prices and parity income, and to devise better ways and means of measuring and expressing the relative level of agricultural prices, as it affects the general economic position of the farmer.

PUBLIC PRICE CONTROL AGENCIES

There are also in the provincial field a number of public bodies concerned in the marketing and pricing of farm products. In this category, are included Milk Control Boards and Commodity Marketing Boards established under Provincial marketing control legislation. Although in some cases these organizations operate primarily on a price negotiating or bargaining basis, most are in a position to benefit from the work of the price specialist. In Ontario, for example, there are marketing schemes operating for a number of commodities under the 1937 Farm Products Control Act. The most recent and far-reaching of these covers the marketing of hogs. Under this legislation, a Local Board is empowered to negotiate a minimum price for hogs several months in advance. To do this intelligently involves a forecast of the demand and supply situation, and a pretty thorough analysis of all price determining factors. Otherwise, the price negotiations will merely consist of a higgling and bargaining process between producer and processor representatives.

These public price control agencies must employ a rational approach, in arriving at appropriate forward prices for the various farm commodities with which they are concerned, rather than base their decisions mainly on political expediency, the relative bargaining power of pressure groups, or even on cost of production calculations. If this is found possible, then various types of agricultural price analysis should be of material assistance. Of particular value would be studies of producer and consumer responses to price changes involving analyses of the elasticity of demand and supply for various commodities. There should also be special study of the problems likely to arise from interference with the normal function of prices in regulating the production and consumption of agricultural products. Since price is the factor over which it is desired to exercise a degree of control, it will not be necessary for price specialists to perfect better techniques for price forecasting, but rather to concentrate on forecasting the demand and supply conditions likely to prevail in the appropriate future period. Thus, by appraising these factors and their probable interaction, price specialists should be prepared to suggest what approximate price will be likely to bring forth a supply in line with requirements. This type of analysis, while applicable to domestically consumed products, naturally becomes more and more complicated as we move into the international field.

One point which seems worthy of special mention, is that if we are entering a period of regulated, or if you like, stabilized prices, for farm products, we will at the same time be leaving farther and farther behind the so-called "normal" or pre-control period. Thus, we will have no recent experience under purely competitive price making from which to draw. On the other hand, it will be possible for the price specialist to observe at first hand the effects of various types of price controls, and there will be a ready proving ground on which to test out his theories of how the price-making mechanism operates.

These brief remarks are only intended to pave the way for further discussion on the topic—Whither Research in Agricultural Prices? I hope, however, that I have been able to register my firm conviction that future research projects in agricultural economics in general, and price analysis in particular, should avoid falling into the category of "arm chair theorizing", and should be applicable in a practical sense to the current problems of the public administrator.

WHITHER RESEARCH ON FARM INCOME?¹

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NET NATIONAL INCOME

Estimates of Net National Income at Factor Cost, recently published by the Dominion Bureau of Statistics, are compiled on a factor share basis with the exception of the net income of unincorporated individual enterprise. A separate classification of the income of unincorporated individual enterprise is required because it includes a mixture of salaries, wages and investment income which could only be obtained separately on a very arbitrary basis. Table I, taken from Page 6 of National Accounts Income and Expenditure, 1938-1945, shows Net National Income at Factor Cost and Gross National Product at Market Prices and gives, under Item 4, the net income of individual enterprise. A substantial part of the income of individual enterprise is composed of income accruing to farm operators from current farm production. It is to be noted that figures of net income of farm operators from current farm production do not measure the total income of farmers. To arrive at their total income, it would be necessary to add the following items, given on the right hand side of Table II:

- (1) net rent on owner-occupied farm houses
- (2) net transfers under The Prairie Farm Assistance Act
- (3) payments made under The Prairie Farm Income Act
- (4) net rent of rented property
- (5) interest and dividends
- (6) income from other activities such as fishing, trapping, lumbering road work, etc.

TABLE 1.—NET NATIONAL INCOME AT FACTOR COST, AND GROSS NATIONAL PRODUCT AT MARKET PRICES, CANADA, 1938, 1941 AND 1945
(million dollars)

Item No.		1938	1941	1945 Preliminary
1.	Salaries, wages and supplementary labour income	2,449	3,529	5,037
2.	Military pay and allowances	9	386	1,089
3.	Investment income	692	1,518	1,811
4.	Net Income of individual enterprise, agricultural and other	790	1,081	1,690
5.	NET NATIONAL INCOME AT FACTOR COST (1) + (2) + (3) + (4)	3,940	6,514	9,627
6.	Indirect taxes less subsidies	646	1,062	992
7.	Depreciation allowances and similar business costs	504	684	750
8.	Residual error of estimate*	-15	+75	-10
9.	GROSS NATIONAL PRODUCT AT MARKET PRICES (5) + (6) + (7) + (8)	5,075	8,335	11,359

SOURCE: National Accounts, Income and Expenditure, 1938-1945.

* Balancing item for reconciliation with Gross National Expenditure at Market prices.

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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Of these six items, information on income receipts by farm operators is available only for the first three. These three are included in estimates of net income of farm operators from farming operations published by the Agricultural Branch of the Bureau of Statistics.

The left hand part of Table II shows net income of farm operators from farming operations and the components from which it is derived. Included are: estimates of cash income from the sale of farm products, values of income in kind, values of changes in inventory of farm stocks and the supplementary payments made under PFA, PFI and WAR. Farm operating expenses and depreciation charges are subtracted from the total to give net income of farm operators from farming operations.

In order to arrive at estimates of the total net income received by farm operators, it is necessary that we obtain the additional amounts which they receive under items (4), (5) and (6) listed above. Net income so computed could then be defined as the total amount which farm families have for living expenses, for the payment of income tax, and for investment in the farm enterprise or some other investment outlet.

The amounts received under Items (4), (5) and (6) are included in the national income under the appropriate headings. At the present time, however, there is no information available which will enable us to determine separately the amounts which farmers receive under these three headings. It is hoped that the census of the Prairie Provinces, taken this summer, will obtain data on which such a separation can be based. For example, the schedule is so arranged that the proportion of the total rent paid by farmers which is actually received by other farmers may be determined. The interest on mortgage indebtedness is handled in a similar manner. As well, we hope to obtain an indication of the net income farmers receive from such non-farm enterprises as fishing, trapping, road work, outside labour, etc. Similar information is needed for the remaining provinces, and could be collected by the decennial census. Still required, however, will be information as to the amount of interest farmers receive on bonds, bank balances and non-farm mortgages as well as rent on non-farm property. As it is not feasible to obtain such information through the census, a special survey may be required.

FARM INCOME

In addition to obtaining information on the above noted sources of income, there are other sources, supposedly included in farm income, about which we require additional information and regarding which our concepts must be more clearly defined. The difficulties arise, oddly enough, in determining income from farm products themselves.

Income accounting for the farm group is considerably more complicated than it is for the individual farm. In the case of the group, care must be exercised to remove duplication. That is, interfarm sales must be eliminated, or they must at least appear on both the income and expenditure side, in order that the net income will include no duplication. On the one hand, this involves determining what final sales are, regardless of whether these final sales be to farmers or to other industrial groups. On the other hand, it involves the determining of the value of goods and services used in

TABLE 2.—INCOME OF CANADIAN FARM OPERATORS, 1938, 1941 AND 1945
(thousand dollars)

1938	1941	1945 Preliminary		1938	1941	1945 Preliminary
664,317	914,039	1,654,165	Cash Income from Sale of Farm Products			
188,791	200,790	263,480	Income in Kind	408,100	578,249	1,034,915
+35,811	-38,884	-185,400	Value of Changes in Inventory			
888,919	1,075,945	1,732,245	Gross Income	15,757	16,587	18,000
465,062	517,976	683,830	Operating Expenses and Depreciation Charges	—	13,593	9,400
423,857	557,969	1,048,415	Net Income Excluding Supplementary Payments	—	18,983	—
—	69,443	13,000	Supplementary Payments ¹			
423,857	627,412	1,061,415	NET INCOME OF FARM OPERATORS FROM FARMING OPERATIONS	423,857	627,412	1,061,415
(d) Plus Net Rent on Farm and Non-farm Property			(d) Plus Net Rent on Farm and Non-Farm Property			
(e) Plus Interest and Dividends			(e) Plus Interest and Dividends			
(f) Plus Net Income from fishing, trapping, lumbering, road work, etc.			(f) Plus Net Income from fishing, trapping, lumbering, roadwork, etc.			

EQUALS TOTAL NET INCOME RECEIVED BY FARM OPERATORS

EQUALS TOTAL NET INCOME RECEIVED BY FARM OPERATORS.

¹ Payments received by program of the year under The Prairie Farm Assistance Act, The Prairie Farm Income Act and The Wheat Acreage Reduction Act.

production which were contributed by other industries. It is desirable to exclude duplication from both sides of the account not only because it builds up an exaggerated total, but also because most of our income estimates are based on commercial sales which automatically excludes interfarm transfers. Since the gross farm income estimates are arrived at in this manner, farm operating expenses must be on a comparable basis and should include only those amounts for expenses which farmers paid outside of the farming industry. For this reason, the 1946 prairie census schedule was changed so that expenses paid to farmers, and to non-farmers, could be obtained separately.

Any commodity sold to someone outside the group will obviously yield income to the group. This is the principle involved in determining the first item in Table II, namely, cash income from the sale of farm products. Essentially this is, for each commodity, merely the quantity sold valued at the farm price. Where possible the amounts reported sold through market channels are used. Thus, in the case of grain, marketings of farmers as reported by the Board of Grain Commissioners are taken as the quantities sold; live stock marketings are obtained from Department of Agriculture reports which give sales to packing plants and stock yards together with exports.

In many cases, however, the whole of each commodity does not go through such well defined commercial channels. It is necessary to obtain in addition the amount which farmers sell locally, that is, to small dealers or directly to consumers. In some provinces the local sales of farm products comprise a large percentage of the total farm income. They include: sales of farm animals to local butchers, the value of animals which farmers slaughter and sell to consumers, the value of eggs, fruit, vegetables, firewood, etc., sold in villages, towns or city markets. Another item, of lesser importance in our economy, is the income received by farmers from the sale to other farmers of products which the latter consume. This item, together with local sales and commercial marketings, give the total of the final sales figure desired. In order to round out our estimates, then, it is necessary for us to have considerably more information regarding the quantities of farm products sold outside of commercial channels.

SUMMARY

In summary, it is considered that, at the present time, we are obtaining estimates of the major portion of the income received by farmers from farm and non-farm sources. Progress is being made in obtaining estimates of the remaining portion received from these sources. In compiling statistics of farm products, emphasis should be placed on obtaining final sales figures and figures of "farm home consumed". Such figures would exclude all intermediate sales. Comparable estimates of farm operating expenses, from which duplicating costs have been eliminated, should also be obtained. We would then be in a position to compile and publish the true total of the net income of Canadian farmers.

I have attempted in this paper to give the mechanics involved in determining the total income accruing to Canadian farmers. For purposes of formulating agricultural policy, the income received by farmers is of general

interest. For administering policy, however, several other, probably still more important steps with which I have not dealt, are required. These steps should be undertaken as soon as possible. We should, for example, be able to obtain farm income by geographic areas such as counties, crop districts or soil types. Just as important, is income by size of farm. Another approach which is probably of even greater interest in determining the economic wellbeing of the farmer, is the obtaining of the distribution of income among farmers. That is, we must know not only the average income, but also the variation about the average. We must know more about the high incomes, but especially more about the low incomes. If this distribution could then be related to localities, and to size or type of farm, we would have a sound basis on which to formulate action for the purpose of raising incomes in the low income areas and the low income groups.

There should and could be comparisons of income, or productivity of farm groups, as for example between areas, and by sizes and types of farm. There should also be a comparison of the income or productivity of these groups with the income or productivity of groups in other industries of the economy. Studies of the facilities or social benefits available to each of these various groups would make other useful comparisons between the groups possible. Logical action based on decisions arising from such comparisons could then be undertaken.

WHITHER RESEARCH IN MARKETING AGRICULTURAL PRODUCTS ?¹

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In considering where we are going in marketing research, I shall confine my remarks mainly to a suggested program of work for immediate or early attention by the agricultural economists in Canada.

To be practical, the program of work must be fitted to the staff of workers and for that reason must be selective. The work already done in marketing research in Canada is creditable. Proof of its value lies in its use and I think it is safe to say that every study has had a practical application in some marketing problem.

PRESENT MARKETING PRACTICES

During this period of transition from a wartime to peacetime economy, there is much work to be done in the field of marketing of agricultural products. Government intervention during the war resulted in a number of changes in the distribution of food products. Certain traditional trade practices were simplified or discontinued. Limitations were placed on the extension of credit, new techniques in processing were introduced and grades and standards took on a more definite meaning for the public. Many of these changes aimed at economy in distribution. The reduction in cost of marketing, which some of these enforced changes brought about, has been so evident that they are being continued on a voluntary basis by the trade. Others are not so evident, and require research to assess their true value in the marketing function.

Government control of prices, and the payment of subsidies to producers, transporters and distributors of food products served a wartime purpose, but, following the removal of the subsidies, and in the transition to a competitive price economy, the readjustments are likely to be difficult. The agricultural economist should supply impartial and factual information on relative changes in major items of cost, to producers, processors and handlers and suggest compromise price determinations, by means of which interruptions or stoppages in the flow of agricultural products, from producers to consumers, may be eliminated. This assumes that the necessary adjustments in price may not or cannot be agreed upon mutually by competing interests. It is suggested that 1942 be selected for the base period and changes in price returns, marketing margins and costs be related to that period. Since volume has such an important bearing on the income of the producers and distributor of farm commodities, the changes in this factor must be measured from the same base. Another important factor, which must be taken into consideration in the determination of price, is the consumer's capacity to pay. An index of change from 1942 in the level of employment in a market area might provide an adequate indicator of the consumer's purchasing power.

¹ A paper delivered to the 15th Annual meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual meeting of the Agricultural Institute of Canada.

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SUGGESTED RESEARCH PROGRAMS

It is suggested that a program of research, as outlined above, be undertaken with respect to farm products which were subsidized through the Agricultural Food Board and that fluid milk be given first consideration.

Rough approximations should be utilized to obtain an overall picture of prices and marketing margins immediately; later refinements of more comprehensive accounting and analysis should follow.

The conversion into price of the subsidy on feed grain, which has been provided under the freight assistant policy, presents a reconversion problem for the agricultural economist. Research is needed on the possibility of applying the export freight rate on western grain when moved to the east, for livestock feeding purposes. If the export freight rate is allowed on grain moved to eastern ports for export, could not a case be made for this rate on grain to apply in the case of exportable bacon?

The forthcoming discussions on tariffs and world trade expansion, scheduled to take place in Washington this fall, will indicate along which lines research will be directed in the next few months. The possibilities of expanded markets for our agricultural products, by a general reduction of tariffs and removal of trade restrictions, are immeasurable. The benefits of freer trade, to Canadian agricultural production and producers, appear so important that the preparation of factual background material on the question demands the best efforts of marketing research workers. Much preparatory work has been done, but more is needed, in order that Canadian negotiators will have at hand all data relevant to the discussions.

International commodity arrangements are closely related to tariffs and world trade expansion. Study of this problem comes within the field of marketing research and will develop when we move from a short to a long supply position in certain farm products. Methods of disposal and wider distribution of surpluses on the home market, through programs such as the food-stamp plan and school lunches, require the attention of the research worker.

Since a large part of the marketing margin between consumer price and producer return is taken up by transportation costs, research in this field from the agricultural viewpoint is overdue in Canada. It would seem that contending interests have had more to do with the establishment of existing transportation rates than the application of the results of scientific research. A study of our customs tariff structure has brought to light many anomalies and discrepancies which, to the research worker, appear discriminatory. It is probable that a study of our transportation tariffs would reveal similar unaccountable and costly restrictions in the marketing of farm products. The effects of changes in freight rates upon marketing methods and market relationships have been so far-reaching that they point the way for research in this field by the agricultural economist.

In days now past the farmer who could not produce practically all the needs of his family from his farm was regarded as lacking in competence. There is a hang-over of this idea, or at least the inference seems to be there, when certain towns and cities are accused of not supplying the greater quantity of their food requirements locally. Yet this trend towards dependence on outside supplies will probably continue. More rapid and

cheaper transportation, advances in food processing, packaging and freezing, are all bound to change the Canadian agricultural map of the future. The principle of comparative advantage in production will become operative to a larger degree, and, unless the plant breeder and soil chemists have something up their sleeves, the quantity of farm products produced locally for certain centres of population will diminish rather than increase.

Although not commercially feasible at present, fluid milk is now being flown by regular trips from Prince Edward Island to the U.S. army camp in Newfoundland. Seedling tomato plants were lifted in Georgia and flown to Ontario for planting this season. Improved equipment and lower transportation rates have shifted apple and grape production to well defined areas and it is a certainty that in the future even the dairy cow will not be as widely distributed over the country as she is at present. I mean that dairy farms will probably increase in size and will be confined to specialized areas best adapted to low cost production of milk. Milk will be shipped long distances in liquid, frozen or dried form. The research worker must be alert to these changes. He must look forward with an adaptable approach to the research problem at hand.

The work that is now being done by marketing research workers in Canada in improved marketing facilities and more rapid water transportation is forward looking. After reading the story of *Boxcars Take Wings* in the June issue of the *Consumers Guide* one wonders how long it will be before an adjoining airways landing strip will be a requirement in the up-to-date food terminal.

Of less immediate importance is work to be done in a study of the economies and improvements in food quality to be gained by the consolidation of small local cheese factories, creameries, fruit packing and other local food processing establishments. This type of study comes within the scope of marketing research in food management.

In laying out a longer range program of work, the marketing research workers in Canada should study the policies and program outlined by the marketing section in the Report of the First Session of the Conference of the Food and Agricultural Organization of the United Nations, at Quebec, and endeavour to correlate their work with that of the Organization. This report states that marketing is the crux of the whole food and agriculture problem. I believe that the conference recommendations can best be carried out by over-all commodity studies and with more team work among economic research workers, production and market specialists and technicians.

THE NOTEBOOK SURVEY

A technique in marketing research which I would like to see used more generally when money and manpower are available, might be described as the Notebook Survey. This method of approach might well be adopted before undertaking any detailed economic survey which is expected to employ considerable staff and time. Its comprehensiveness would depend on the time available. Following this plan, an attempt should be made first to get an over-all picture of the problem and related problems through consultation and observation. Then the need for more detail could be assessed and if required, the more comprehensive survey undertaken.

I would also like to see the notebook survey method given a trial in a main marketing research project on a commodity basis. That is, one man with or without an assistant, would follow through on a single commodity or group of closely related products from farm to market. His would be a roving commission with a notebook. His assignment would be to see how the job is done and study the economic implications. He would observe, compare, consult, read and travel. He would try to find the best way of doing the job and where possible suggest improvement.

He might, for example, be assigned to a study of the four major canning crops, tomatoes, corn, peas and beans. He should be on hand at the time of seeding. He would study cultivation and harvesting methods, visit the processing plants, move with the product to the wholesaler, retailer and to the consumer. He should visit a number of farms, consult production specialists, inspectors, plant managers, technicians and salesmen. He should gather cost and price information at every step in the marketing process. Of course, such a method is subject to many modifications and if the research worker found some segment in the over-all study which needed more detailed study, a more comprehensive survey with additional staff might be made of that phase of the work in the following season. This method should produce a commodity specialist and if he can then help people to understand the economics of marketing vegetable canning crops, he will be making a very worthwhile contribution to marketing research.

WHITHER RESEARCH IN AGRICULTURAL CO-OPERATION?¹

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PAST AND PRESENT IN CANADA

In attempting to discuss future research in agricultural co-operation in Canada, the logical approach seems to be to review what has been done in the past and consider what remains to challenge the future. To review what has been done presents no difficulty for there has been very little, and so, consideration of what remains becomes more difficult because of its magnitude. After a three year absence from active interest in Canadian Co-operation, and feeling the need of guidance, I enlisted the aid of qualified observers in every province and asked them to suggest what gaps in information on agricultural co-operation might be filled by future research. In reply, eighteen different projects were proposed as needing further examination. Only a few of these were mentioned more than once. Perhaps the most significant, and one mentioned four times, was the need for research defining the economic role of a co-operative in a community. As one correspondent put it:

" . . . co-operators believe that their particular organization has had a beneficial effect upon the general economy but the grounds for that belief are not too easy to prove."

Co-operators are agreed that one of the main reasons for the establishment of a co-operative in any community is to provide a measure of economic relief from monopoly prices by something more competitive in character. Indeed, co-operative organizers are wary of establishing a co-operative where there is no apparent need. They are usually aware that a great many past failures can be traced to hasty and ill-advised organization. Further research could rightly be done to uncover conditions which warrant co-operative intervention. On this particular point it will be interesting to follow the progress of the Canadian Co-operative Implements Ltd. in the field of distribution and manufacture of farm implements. This company is not the result of an unreasoned hue and cry against the operation of private machinery manufacturers and distributors. The organization was considered and the problem studied for a long time. This in itself is a type of research which may become more prevalent in the future. Continued study will reveal the effect of this organization on western agriculture and perhaps on the farm machinery industry.

Other projects were recommended which cannot be regarded as likely to fill major gaps in information but rather they indicated more immediate concerns which needed attention. Some of those suggested were: poultry marketing by co-operatives, co-operative stores, co-operative medicine, co-operative distribution of fertilizer and farm supplies, rural credit unions, co-operative farming, co-operatives and export trading, co-operative lumbering and the co-operative use of farm machinery. One writer

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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suggested that a comprehensive review of agricultural co-operatives in Canada, comparable to A. E. Richards' report for 1935¹, should be made for 1946, to enable co-operative leaders to assess their present position and plan for further development. Personally, I feel that the variety of suggestions received indicates that research in the field of agricultural co-operation in Canada will probably be confined for some time yet to particular commodity projects and problems.

Chief limiting factors in practically all research are, of course, funds and personnel. These factors apply more to research in agricultural co-operation than in any other field of agricultural economics. Agencies to direct and conduct studies in agricultural co-operation are few and not too wealthy. At the moment, the Economics Division at Ottawa and the Department of Co-operation and Co-operative Development in Saskatchewan are the only two groups equipped with funds and personnel sufficient to do any work along this line. The universities have not done a great deal and are not likely to undertake anything substantial. The Faculté des Sciences Sociales of Laval University has a research division which has undertaken some minor works in collaboration with the Department of Sociology and the Superior Council of Co-operation of Quebec. Ontario Agricultural College has reported particular projects undertaken as master's or doctor's theses, none of which has been published for general distribution. The Extension Department, University of British Columbia, has assigned field workers in the organization of co-operatives and credit unions in the coast province. No doubt, there are many theses on agricultural co-operation which have been completed, or are under way by students, but these are not likely to be published by reason of lack of funds for printing. Other likely agencies are the larger co-operatives and the various provincial co-operative Unions as well as the Co-operative Union of Canada. This latter organization has plans for a research division but again, lack of funds will delay organization and commencement of work. The Union plans a legal department which will aid in drafting and amending legislation for the provinces and the Dominion. There have been suggestions that the Union could also initiate study and research into co-operative accounting and uniform terminology. The larger co-operatives, if they undertake any research, would not be likely to do it in co-operation as such, but would rather be concerned with the technological aspects of the marketing or production of their own particular commodity.

SITUATION IN THE UNITED STATES

In the United States the situation is much different. So much has been done and is now projected that the criticism has been made that the amount of research already completed in co-operative marketing is all out of proportion to the importance of co-operatives in the national marketing scheme. Such a criticism would have no basis in fact in Canada. Rather, the criticism could be reversed, and read that the importance of co-operatives in marketing and purchasing in Canada warrants a great deal more research than has been done or is contemplated. A recent survey by the American Institute of Co-operation reported 52 projects completed and

¹ "Farmers' Business Organizations in Canada 1935."

published since 1939 by universities alone. Besides these, the Co-operative Research Division of the Farm Credit Administration during the same period produced 12 bulletins, 13 circulars, 127 miscellaneous and special reports, 32 confidential reports and it has 35 to 45 projects under way at all times. I do not suggest that Canadian research in agricultural co-operation should ever reach this mark, but I do think that the importance of co-operative marketing and purchasing should, and probably will receive more attention in the future. A start is being made in Canada. Two studies begun in 1939 have been delayed by the war. One dealt with the co-operative marketing of eggs, poultry and live stock in the Maritime provinces and was undertaken by the Dominion Economics Division. It is proposed now that this study be revised and brought up to date for publication. The other was a most comprehensive study of co-operative purchasing associations in Saskatchewan. The final report will consist of eight pamphlets, three of which are now available, and the remaining five are to be pushed to completion this year. A review study of co-operatives in British Columbia is projected, and a similar study is being considered for Ontario. Research Services of the Department of Co-operation and Co-operative Development in Saskatchewan reports a number of projects recently completed and underway including such topics as: co-operative farm planning, co-operative farm accounting, co-operative live stock feeder associations, and co-operative artificial insemination associations. This summer they are undertaking a study of co-operative vegetable marketing and one on co-operative international trading. Other studies proposed involve rural credit unions, beef rings, cold storage and community centres.

OBJECTIVE RESEARCH NEEDED

Here then, arises the problem of objectivity in co-operative research. The people of the United States have detected a tendency to emotionalism in their work, and research studies as such lose in value when objectivity is forgotten. It is most difficult for people actively engaged in promotional and organization work to conduct strictly impartial surveys. There is an infection about co-operatives against which there is apparently no immunization. Even the most hardened economists—and I have seen some—can and do fall before the charm when they undertake intensive study of co-operatives. Organizers and promoters may rightly be excused when their writings are influenced by their enthusiasm for the co-operative method.

Research in any line can be of two types—(1) informative and analytical and (2) the problematical, wherein a particular problem is tackled and a practical solution proposed. There are some who think that the first type has been overdone. F. L. Thomsen, in the November 1945 issue of the *Journal of Farm Economics*¹ thinks this way and calls for a more practical approach. Purely informative and analytical works in agricultural co-operation would seem to be needed in Canada for some time yet, but we should not continue indefinitely as Thomsen thinks the United States has done. Even yet in that country, Thomsen reports, only 18% of 589 marketing projects analyzed were of the direct problem approach type. We, in Canada, must get along with our basic and

¹ "A Critical Examination of Marketing Research."

necessary projects and then proceed to the more practical and satisfactory type of research which tackles a problem and presents an acceptable solution.

The records of the Economics Division at Ottawa include reports from more than 2,000 co-operative associations which do an annual volume of business of over $\frac{1}{2}$ billion dollars. There is every reason to believe that these figures will continue to increase. As they do, increased demands for research will have to be met by government agencies, universities, and by the co-operatives themselves through their national union. These demands should result in co-operative efforts by the agencies named, and thus produce much-needed and useful research which will be available to governments for policy planning and legislation, to the universities for teaching purposes and reference, and to the co-operatives for propaganda and publicity.

WHITHER RESEARCH IN ECONOMICS OF NUTRITION? ¹

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Nutrition is a very new science, and exact standards of the amounts of the various food nutrients required for a nutritionally adequate diet have not as yet been determined. A table prepared by the National Research Council of the United States of recommended daily allowances of calories, protein, minerals and vitamins, has been widely used in Canada. Since "the quantities given were planned to provide not merely the minimum sufficient to protect against actual deficiency disease, but a fair margin above this," and since many figures were admittedly tentative until research would give more exact knowledge, the recommended allowances were in some cases much higher than were considered necessary by some nutritionists. Physical examinations made in conjunction with dietary surveys have failed to show defects in those whose intakes of certain nutrients were considerably below the recommended allowances. The Canadian Council on Nutrition in 1945 suggested lower amounts per person of most nutrients for use in estimating, for the country as a whole, supplies of nutrients which would be adequate but not excessive. Those recommendations were influenced by the lack of knowledge as to the benefit of harmfulness of large amounts of certain nutrients, and by the consciousness of the present shortage of food.

Neither the United States National Research Council allowances nor the recent Canadian figures were meant to be used as fixed standards against which the intakes of nutrients by individuals could be measured, since it is recognized that individuals vary considerably in their requirements.

Much basic research must be done in determining the minimum and optimum needs of many representative persons. When enough of such tests have been made standards may be set up for individuals. (These will not be fixed amounts, but the range of variation for individuals of different classes may be definitely stated.)

The requirements of a group must be found from the average requirements of its members and the research mentioned above is therefore essential to accurate assessments of the needs of groups. At the present time we must be satisfied to use standards which we know to be subject to change. The tentative nature of present standards tends to discourage the making of dietary studies.

Because of the absence of a satisfactory standard for assessing the diets of individuals or groups of individuals, considerable research work is now underway by nutritionists in Canada and United States to obtain information which will help them to establish such a standard.

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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KINDS OF DIETARY STUDIES

Another fundamental problem in measuring the adequacy of human diets is the difficulty of getting information on the actual food consumed. Four principal methods have been employed in dietary studies. We might call the first method that which was used in the inquiry into food consumption levels in Canada, United States and Great Britain, in which the total food produced is calculated, imports are added and exports, wastage and feed and seed requirements are deducted. The remainder is divided by the total population. The result is the average per capita consumption of different kinds of foods. I will indicate later some of the limitations in this method of determining the adequacy of diets of the people of a country.

The second method of making dietary studies is for individuals to keep a record of all the items of food consumed for a given period, say one week. In this type of study the work of analysis of food into its nutrients is great, since the foods listed comprise many different mixtures. Surveys have been made in which the food eaten by each individual was weighed but, owing to the amount of supervision and co-operation necessary, only relatively small numbers of people have taken part. If the food is not weighed its amount must be recorded in servings which may vary greatly in size. By this method an effort is made to obtain a food record for each individual in the study.

The third method is what we call the inventory and purchase method which consists briefly of the weighing of the food in a home at the beginning of a week, having a record made of food purchased or brought into the home during the week, and again weighing of the food in the home at the end of the week. Here again only a relatively small number of families can be covered and in this type of study the food intake of the individual of a family cannot be recorded but only the total family food consumption. In both the second and third methods, several weeks' records scattered over the year are necessary in order to get a picture of the food consumption for a year. The proper number of weeks to be included, and the particular weeks of the year to use, are still unsolved problems.

The fourth is a questionnaire or a check list method and is also on a family rather than on an individual basis. In this method, the housewife indicates to an enumerator the quantities of different kinds of foods used by the family for the week previous to the interview, and the enumerator records these. This information also must be obtained several times during the year. By this questionnaire method a much larger number of families can be covered and it is this method that is being employed in the current study of rural diets in the Maritime provinces. In the Maritime study, information on food consumption is being taken three times from the same families during the year. In connection with this particular study, the enumerators also record the food habits of each member of the family with particular reference to their normal consumption of milk, vegetables, tomatoes and citrus fruits, whole-wheat bread, etc.

In none of the presently used methods of making dietary studies are investigators definitely assured that they are obtaining a complete knowledge of the food consumed by an individual or a family during the year of the study.

LIMITATIONS OF TOTAL PRODUCTION AND CONSUMPTION FIGURES

The figures giving the various quantities of different kinds of foods entering civilian consumption in Canada, which were first prepared in connection with the studies of food consumption levels in Canada, United States and Great Britain, have been a most important contribution to our knowledge of the average food consumption of Canadians. A recent publication, by the Nutrition Division of the Department of National Health and Welfare, shows the estimated average supplies of nutrients apparently used by Canadians. (Above, this has been called the first method of studying diets). The authors of this publication point out that national average per capita supplies of nutrients would represent the actual quantities of food nutrients used per person only if there was a perfect distribution to each person of a statistical share of each foodstuff.

The authors state further: "The nutrition problem in Canada is not shown by these figures except in those cases where the foods used fall short of the requirement standard used, which means that all people just could not be fully nourished in those nutrients. The nutrition problem is actually one of finding those people who are suffering ill-health by virtue of receiving much less than these average amounts of nutrients, and the solution of the nutrition problem in Canada is the removal of the causes. The extent of malnutrition will depend on the types and amounts of deviations from the national averages in this booklet. These can be ascertained only by direct survey methods, not only for what people are eating, but for what circumstances force them into these eating patterns."

In determining the weighted requirements per person, the authors have attempted to make adjustments for inequitable distribution and losses in storage, distribution, preparation and cooking where figures on these things were available. The report states that these estimates of losses and adjustments for maldistribution are only approximate, and much more information is required. In this field of study extensive research should be undertaken.

MORE STUDIES BY INCOME GROUPS NECESSARY

Studies of consumption of milk, meat, eggs, cheese, etc., which have been made by the Economics Division, have been primarily to assist producers in the marketing of their products. They have, nevertheless, been useful in helping to measure certain aspects of nutrition of Canadian people. They have, for example, shown the direct relationship, particularly amongst urban families, between the quantities of these foods used and the income of the households. Studies of family budgets of wage earners, made a few years ago by the Dominion Bureau of Statistics, have also been useful in determining the relation of income to the consumption of different kinds of foods. Studies of the food consumed by urban households with incomes of \$1500 or less in 1939-40 in four cities of Canada has given considerable information on the diets and the deficiencies in the diets of these classes of people. But before we have any adequate picture of the nutrition of Canadians in different income groups, in different sized families and in different geographical areas, much additional survey work will be necessary on the diet pattern to these groups. Until such information is available, we will not know the extent to which there is inequitable distribution of foodstuffs among our urban and rural people.

PREVENTING LOSSES IN NUTRITIVE VALUE OF FOODS

There are economic aspects to the losses in the nutritive value of foods in marketing, in storage, in preparation for consumption and in cooking of foods. We know, for example, that certain vegetables lose some of their nutritive value when exposed for a considerable time under unfavourable conditions in a public market, in a wholesale warehouse or in a retail store. We know that the most approved methods of cooking vegetables will retain more of their valuable vitamins than the older methods of cooking. We know too, that in the processing of foods of various kinds a large part of the original nutrients can be retained when proper methods are used. It may cost little if any more, and in some cases less, in the route from the producer's field or stable to the dinner table to employ methods which retain the original nutrients of the products, but we need much more light on this important subject.

FARM FAMILIES SHOULD HAVE NUTRITIOUS DIETS

Most farm families can have a diet which is nutritionally adequate because they can produce most of the food commodities which make up such a diet. We hope to know much more about the diets of rural people than we do now, as our rural diet investigations are completed. If we find that these diets are deficient we should undertake studies to learn how to make them adequate and the costs of doing so, so that this information can be made available to farm families to help them correct their diet patterns.

SPENDING FOOD DOLLARS WISELY

We know from dietary studies that some urban families obtain a better diet than others, for the same expenditure of money. This is an economic aspect of nutrition that needs more investigation in an effort to help the lower-income families in their problem of how to spend their food dollars most wisely.

PRODUCTION OF FOODS OF HIGH NUTRITIVE VALUE

There is considerable interest in the production of varieties of food plants which have high nutritive values. Some kinds of wheat, for example, are higher in vitamin B, some varieties of tomatoes and apples are richer in ascorbic acid than are other kinds or varieties. Whether or not it would pay for farmers to grow varieties with the higher vitamin values depends on their relative yields per acre and other economic factors.

USING FAMILY ALLOWANCES FOR BETTER FOODS

In Canada, and in many other countries, family allowances plans are now in effect to assist low- and medium-income families with children to increase their purchasing power. This added purchasing power should result in better diets, especially if the recipients of the allowances are educated to the importance of using the funds provided by governments to buy foods which will satisfy the physical needs of their growing children. To what extent this added purchasing power is being used to improve the nutrition of these children would be the object of a useful research project and could be the basis of an educational program on nutrition.

FLOOR PRICES AND FOOD PATTERNS

It is price that largely determines what a farmer produces; whether wheat for human consumption or barley for hogs, whether dairy products or sheep products, whether carrots or cabbage. Through the mechanism of floor prices the production of a crop or animal product can be encouraged or discouraged. Any government which has authority to set floor or minimum prices, to buy and sell food commodities and absorb any losses between buying and selling prices, can do much to determine the food pattern of the people of that country. People in general like to eat nutritious foods such as milk, meat, eggs, fruits, and vegetables, and generally speaking they will buy them if they can be obtained at prices within their pocket books. If a government is prepared to take care of the losses between buying and selling prices, every family in a country can be given the opportunity of obtaining an adequate supply of foods of high nutritive value and at the same time the producer can be paid the prices which will make their production profitable.

LOWERING PRODUCTION AND MARKETING COSTS

Any reduction in the costs of production and marketing of foodstuffs should contribute to better nutrition, because the savings in costs are not only of importance to producers who are likely to be the first to benefit, but they will eventually also help consumers by giving them food commodities at more attractive prices. How to lower the costs of production and marketing is, of course, a most important field of economic investigation.

FOOD PROBLEMS OF WORLD LARGELY ECONOMIC

One of the primary reasons why so many people of the world are chronically ill-fed is because it has not yet been profitable to bring under cultivation for food production the land areas of the world which are still undeveloped. Nor has it been sufficiently profitable to food producers to drain or irrigate sufficient additional land, to use better cultural methods on present crop land, to employ more and better machinery and more commercial fertilizers in order to raise the yields per acre. If, and when, the nations of the world where malnutrition is common, and in some cases universal, obtain the purchasing power necessary to make it possible for their people to pay for foods at a price that will encourage the opening up of new land for productive purposes and the increasing of yields on present farm lands, the world's food producers will supply the food to satisfy the hunger and to eliminate malnutrition in these countries. I recognize, of course, that there is a limit to the amount of land in the world which can be used for food crops, and that the extension of scientific and technical knowledge of food production and marketing will help to adequately feed the world, but the main problem is economic. Most of the malnutrition in North America, in Europe and in Asia is due to poverty. Economic research on a world scale would contribute greatly to the solution of this stupendous problem. Most, if not all, the wars between nations have been because of real or imagined economic differences between these nations. The elimination of war and the fear of war rests in a very large measure on the elimination of want and malnutrition.

AGRICULTURAL PRICE POLICY¹

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All countries have had definite price policies for farm products during the war years. Some of the practices prevailing during the war years may be expected to be carried over to the post-war period. It must be recalled that regulation of prices of farm products in some countries did not start with the recent war.

The price policies of different countries in the pre-war period, during the war, and now proposed for post-war years, varied in the past and will vary in the future, if present proposals prevail. A comparison of some of these regulations in different countries is one of the first purposes of this paper.

The two countries whose price policies have a definite influence on Canada are Britain and the United States. The reasons why this is so needs no elaboration before this audience. Yet it may be well to recall that there have been times when the United States have been important to agriculture, and to the nation as a whole, both for exports of the surplus farm products that we do grow, as well as for the imports, which because of climatic limitations, are not produced locally. Exports south tend to be spasmodic while imports from the south are more or less regular. With Britain, trade is largely one-way traffic as far as farm products are concerned. Yet the nature of the one-way traffic depends upon the price policies for agriculture that are carried forward in Britain. To a greater degree perhaps the price policies for agriculture in Canada depend upon how the problem is treated in the United States. The fiscal policy of Canada, from the Repeal of the Corn Laws a century ago, to the present, has been largely the result of the fiscal policies of both Britain and the United States. This is simply because it takes two or sometimes three to make a bargain.

The first necessity is to compare the price policies, past, present and proposed of the three countries.

BRITAIN'S AGRICULTURAL PRICE POLICIES

Recent regulation of prices of farm products began in the early twenties with the bonused expansion of beet growing. This was followed in 1932 by bonused wheat growing and, before the outbreak of war in 1939, the Minister of Agriculture of the time claimed that all staple farm products enjoyed some measure of price insurance.

From 1932 to 1938 British wheat growers were guaranteed a farm price of \$1.25 per bushel or better. During that period the average farm price in Canada was 65 cents per bushel. The proposal is to pay domestic wheat producers of Britain \$2.00 per bushel for the current crop.

¹ A paper delivered to the 15th Annual Meeting of the Canadian Agricultural Economics Society, held at Macdonald College, Quebec, June 24, 1946, in conjunction with the 26th Annual Meeting of the Agricultural Institute of Canada.

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Just what the future price policy is to be is rather hard to estimate except that it proposes to pay enough to the domestic grower to keep him at it and, at least according to some authorities, buy the necessary imports at the lowest price possible, which has been their custom for around a century. It is proposed to provide guaranteed future prices for farm products produced domestically, provided a certain degree of efficiency is reached. Failing a certain standard of efficiency the powers that regulate prices reserve the right to eject the farmer from his business. This may be something like the possibility of a lawyer losing his gown for conduct unbecoming to the profession. We may suspect that it may happen about as often.

The policy of a two-price system prevailed in Britain before the war, during the war, is now prevalent and is proposed for the future. The philosophy of this plan has been clearly set forth by Geoffrey Crowther, editor of the London *Economist*—

"A man-hour of work on the British farm produces less in money value than a man-hour of work in British industry. From the purely economic point of view, we should put our labour where it will produce most, and we should buy our food from where it costs least In a country where industry so greatly outweighs agriculture, cheap food is a great boon Agricultural policy in this country should not be based on economic considerations alone, but it should not ignore them It is a national interest that imported food should be as cheap as possible The British farmer would have nothing to fear from this freedom of imports. He could always sell on the market, however low it fell, in the knowledge that his deficiency payment would be all the larger. On the other hand, freedom of import allows the British consumer to get the other half of his food supplies at the lowest price to which world-wide competition will drive it And since deficiency payments would not enter into retail prices, the cost of living would remain at rock bottom, with all the advantages that brings to the standard of living, and, through its effects on wages, to the cost of production of English industry."¹

This is the two-price policy that prevailed in the pre-war period and apparently has some support for the post-war era.

THE UNITED STATES

The United States also favours a two-price policy. But is it to be used quite differently from that of the British system. It is not the domestic consumer that is to be the beneficiary in the plan proposed, but rather the foreign consumer, whoever he might be. The two-price system as proposed for the post-war period is that the small surplus, that of necessity must be disposed of on the world market, must not be allowed to depress food prices in the domestic market.

While Britain proposes a two-price policy which must not permit prices needed to keep domestic farmers producing to apply to the other half of imported food, the United States proposes to prevent the small fraction of a surplus to depress domestic prices.

¹ Crowther, G., Prosperity and Cheap Food, *Farmers' Weekly*, March 16, 1945.

There is no mathematical limitation to the variation in proposals of the two-price system. The source of limitations, if any, is from those who supply public funds. This is not a serious source of limitation, as taxpayers usually utilize so much energy trying to avoid the taxes that they know they pay, that they have no energy left to attack the more subtle problem of paying those taxes of which the incidence may be a bit uncertain.

It is not hard to understand why the two-price system is applied in different ways in Britain and the United States. One is an import country for food supplies and the other has a small surplus, that is, small in comparison to the domestic market. Hence both countries may be said to follow the system that will be, for each, the most economical from the point of view of the public purse—or taxpayer. Neither of these two-price policies are to be compared with a lower price for those who otherwise cannot afford to buy, which policy is generally supported by producers.

CANADA

A comparison and contrast of Britain and the United States is illuminating when considering the price policy of Canada regarding farm products. It is my contention that Canadian fiscal policy is the result of the respective policies of both Britain and the United States. Prices of farm products depend to a great degree on what these two countries do in regard to prices, for two reasons. One is that these two countries are our best customers and the other is that Canada with 60 million acres of land in field crops and upwards of 10 million of pasture and only 12 million people—is a surplus country of food products in a much larger way, proportionally, than is the United States.

Canada is now, and has always been, trying to cater to two markets, namely, Britain and the United States, in the export of farm products. Now with the two price policies outlined above what policy *may* Canada follow? It is not an easy matter to establish a price policy for Canadian farm products.

The problem is made more complex by the climatic limitations of Canada. Not only have we a surplus of farm products generally but it is also necessary to produce and sell a large volume of those things which it is climatically possible to grow in this northern region, but also to produce enough of a surplus to exchange for many articles of diet, such as citrous and tropical fruits, that we cannot produce yet consume in great amounts.

The inability of such a country situated as far north as Canada to follow a self-sufficing system, is conceded and needs no elaboration. Yet, this condition stresses the importance of a price policy as well as increasing the importance of international trade.

Canadian people—three-quarters of whom are not farmers—expect that agriculture as an industry must cater to the world market in a large way. The chief market, as we have seen, insists on a policy of cheap foods. The idea of charging more for food in the domestic market than world prices has been suggested, but never taken very seriously. The proportion of farm products exported is too great to make this feasible. Past practice has been to let world market prices establish domestic prices whatever

economic position that left the industry. During the war-period contract prices came into practice. The post-war period proposes to continue that general policy plus floor and ceiling prices.

PRODUCING FOOD ON ORDER

Contract prices work fairly satisfactorily provided that there is some equality in bargaining power, and that some flexibility in prices is provided. The equality of bargaining power depends largely on the volume in prospect. In any event contract prices entail some suggestion of horse-trading in the sense that negotiation may require a certain compromise or *give* as well as *take*. Let us remember that negotiated prices are not entirely a new development as the record of adjusting prices for fluid milk amply illustrates.

FLEXIBILITY

It is hard to preserve a degree of flexibility in negotiated prices that will avoid shortages and surpluses. Recent experiences have demonstrated the possibility of regulated prices developing shortages while the possibility of regulated prices piling up surpluses have occurred within the memory of some of us. It would appear that we have not allowed sufficiently in recent price regulation for the simple economic axiom; the cure for high prices is high prices and the cure for low prices is low prices. In other words, regulation of prices means regulating supplies. It is hard to have low prices and plenty for any permanent period. We generally concede this in other goods but are loath to allow this simple philosophy to apply to food. Naturally, we want cheap food and this topic may come up later if time permits.

Price flexibility must be maintained for two main reasons. One is the need for allowing for improved technique in production. This is usually kept in mind. The other, more temporary perhaps but very important in a country such as Canada, is seasonal flexibility. This seasonal flexibility has not been well maintained under price ceilings. In some instances it may have worked well. Yet in some it has resulted in making the marketing more irregular than usual. This is noticeable in live stock. The seasonal shortage of beef is an example that needs no discussion at the moment as it is too familiar to all. The marketings of hogs is an example that may have escaped notice. All familiar with the number of hogs coming forward monthly know that it required a higher price from June to September than from November to January to keep supplies fairly regular. With our climate this is understandable. Yet during the past few years, with contract prices, the November price has run to about the same and sometimes higher than the June price of the same year. This was due to new bacon contracts being made in the month of October. With increasing prices, it has been possible to have higher prices in November than in June. If this continues for sufficient time fewer will be fed in the winter months and supplies will be irregular. The provision of flexibility provided for in the first contracts appear to have been pigeon-holed, and supplies have become less regular. This has been partly due to methods of breeding in Western Canada. Yet it has developed a problem that will require time to readjust.

PRICE POLICIES

Price policies may take a variety of forms. Interferences with price include the following:

1. Customs tariffs
2. Bonuses
3. Sanitary regulations
4. Wage regulations
5. Quotas
6. Cartels
7. Currency manipulation
8. Ceiling prices
9. Floor prices
10. Contract prices

Probably this list is not complete. There is no need to discuss all these forms. Yet it is necessary to list them to show that price competition may be, and is, interfered with in many ways.

With prices *arranged* or *administered*, one may use the word liked best, the struggle becomes one of trying to get into the production of those goods that have the highest ceiling. Men's shirts and butter are two recent somewhat similar examples. The raw material for both butter and shirts could be turned into products that offered more profit.

PROBLEMS IN PRICE POLICIES

The Department of Labour, Ottawa, in a release of May 6, 1946 sets forth the major difficulty in formulating price policies for agriculture. This release compares prices of butter, eggs, sugar, bread and milk for March, 1919 and 1946.

Commodity	Price	
	March, 1919	March, 1946
	¢	¢
Butter, per lb.	58.0	44.7
Eggs, per doz.	54.6	43.8
Sugar, per lb.	11.9	8.6
Bread, per lb.	7.9	6.7
Milk, per qt.	13.7	10.5

On the same page it is pointed out that wages being paid to-day in the main occupational and industrial groups are the highest in Canada's history.

One page poses the problem. Wage-workers want high wages and cheap food. Farmers favour free labour and high prices of farm products. Some modification of this latter sentence appears necessary. Grain growers favour high grain prices. Feeders favour cheap feed for their live stock. It is hard to satisfy everybody.

Cheap food is a desirable aim. This is an advantage to the farmer as he now buys such a large part of his food. This comes about with specialization in farming. Not only is the farmer interested in cheap food for himself, but also in cheap feed for his live stock that is purchased in ever greater and greater proportion. In Canada out of a total of \$462 million farm expense in 1940, \$63 million was for purchased feed. Only one other item exceeded this total which was labour, including value of board, \$84 million. Quebec and the Maritime Provinces spent much more on pur-

chased feed than on labour. Will or should the freight subsidies on feed be continued is a question in price policy. Cheap food and prosperous agriculture may go together. How is this possible? By increasing output per farm, and per man. By fewer farm workers producing more. Not by harder work. Many farmers working for themselves *may* now put in two 40-hour weeks per week. They may do this without interference as all general labour regulations specifically exempt farmers from their provisions. The better way to bring this about is by better organization and management. This may require larger farms in some areas. People do not like this suggestion. Many assume that the way to get cheap food is to have more farmers. This is a mistake. If this were true, then the question of why Canada is supposed to furnish so much in the fight against famine becomes somewhat perplexing.

SUMMARY

Time limits the elaboration of these points. Yet two more must be mentioned. One is the question of why the Atlantic Charter mentioned raw materials as the only materials that should be free of access to all people. The other one is how will the export of Canadian farm products be influenced by the present separation of the surplus food area of Germany from the densely populated deficit area? These are perplexing problems in price policy. Is it to be conceded that the only products for which freedom of trade is proposed are *raw* products? Must the feeding of the bulk of the population of Germany be largely a responsibility of North America, and for how long?

Limitations of time have prevented attention to countries other than the three in a comparison of price policies. Other countries might be mentioned. In the pre-war period the Argentine was reluctant to enter into any international price agreement. It was looked upon at that time as fearless of international competition. A recent report records that it is now proposing even stricter regulation than prevailed under any European dictatorships.

European dictatorship planned to make Germany the industrial star of Europe with satellite states—inferior constellations supplying the raw materials. One plan of the Allies was to de-industrialize Germany. This plan was unwelcome in Germany and described as an endeavour to reduce that country to a potato patch. Are we to conclude that there is a definite admission that other industries are to continue to be more prosperous than agriculture? If so, then I submit that this conclusion may have, and should have, a salutary influence on Canada's export food policy, and our share and responsibility in relieving scarcity of world food supplies.

